Huntingdon

Richland Co. l.f #102
Methane

LANDFILL GAS MONITORING PLAN
RICHLAND COUNTY SANITARY LANDFILL
RICHLAND COUNTY, MONTANA

A member of the HIH group of companies

LANDFILL GAS MONITORING PLAN
RICHLAND COUNTY SANITARY LANDFILL
RICHLAND COUNTY, MONTANA

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FEB 08 1995

Montana Department of Health
and Environmental Sciences
Waste Management Division

Huntingdon

Huntingdon Engineering & Environmental, Inc.
600 South 25th Street
P O Box 30615
Billings, Montana 59107

Telephone: (406) 248-9161
Fax: (406) 248-9282

February 7, 1995

Montana Department of Health
and Environmental Sciences
Solid Waste Program
P.O. Box 200901
Helena, Montana 59620-0901

ATTENTION: Mr. Pat Crowley

SUBJECT: Landfill Gas Monitoring Plan,
Richland County Solid Waste District Landfill
Sidney, Montana
Huntingdon Project No. 90-3092

Dear Mr. Crowley:

Attached for your review is the Landfill Gas Monitoring Plan for the Richland County Landfill. Personnel from Huntingdon Engineering & Environmental, Inc. prepared the monitoring plan for Richland County in accordance with the requirements of the Administrative Rules of Montana, Title 16, Chapter 14, Subchapter 5, Section 21.

Please contact us at (406)-248-9161, if you have any questions or comments pertaining to the enclosed document.

Sincerely,

Huntingdon Engineering & Environmental, Inc.

Brian McHugh
Brian McHugh
Billings ECS Manager

John L. Olson
Project Hydrogeologist

BMc(JLO)dg

Enclosure

cc: Mr. Barry Damschen with attachment
Richland County Commissioners with attachment
crowley.ltr.n.envir.903092

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FEB 08 1995
Montana Department of Health
and Environmental Sciences
Waste Management Division

LANDFILL GAS MONITORING PLAN
RICHLAND COUNTY SANITARY LANDFILL
SIDNEY, MONTANA

Prepared for:

Damschen and Associates, Inc.
PO Box 4817
Helena, Montana 59604

County of Richland Commissioners
201 West Main
Sydney, Montana 59270

Prepared by:

Huntingdon Engineering & Environmental, Inc.
P.O. Box 30615
600 South 25th Street
Billings, Montana 59107

February, 1995

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1.0 INTRODUCTION

Huntingdon Engineering & Environmental, Inc., has prepared this Landfill Gas Monitoring Plan for Damschen and Associates, Inc. and the Richland County Solid Waste District (RCSWD) landfill. The Administrative Rules of Montana, Title 16, Chapter 14, Subchapter 5, Section 21 (ARM 16.14.521) and 40 CFR Part 258.23 establish minimum criteria for the routine monitoring of landfill gas at municipal solid waste landfills to ensure the following:

- The concentration of landfill gas generated by the facility does not exceed 25 percent of the lower explosive limit (LEL) for methane in facility structures; and,

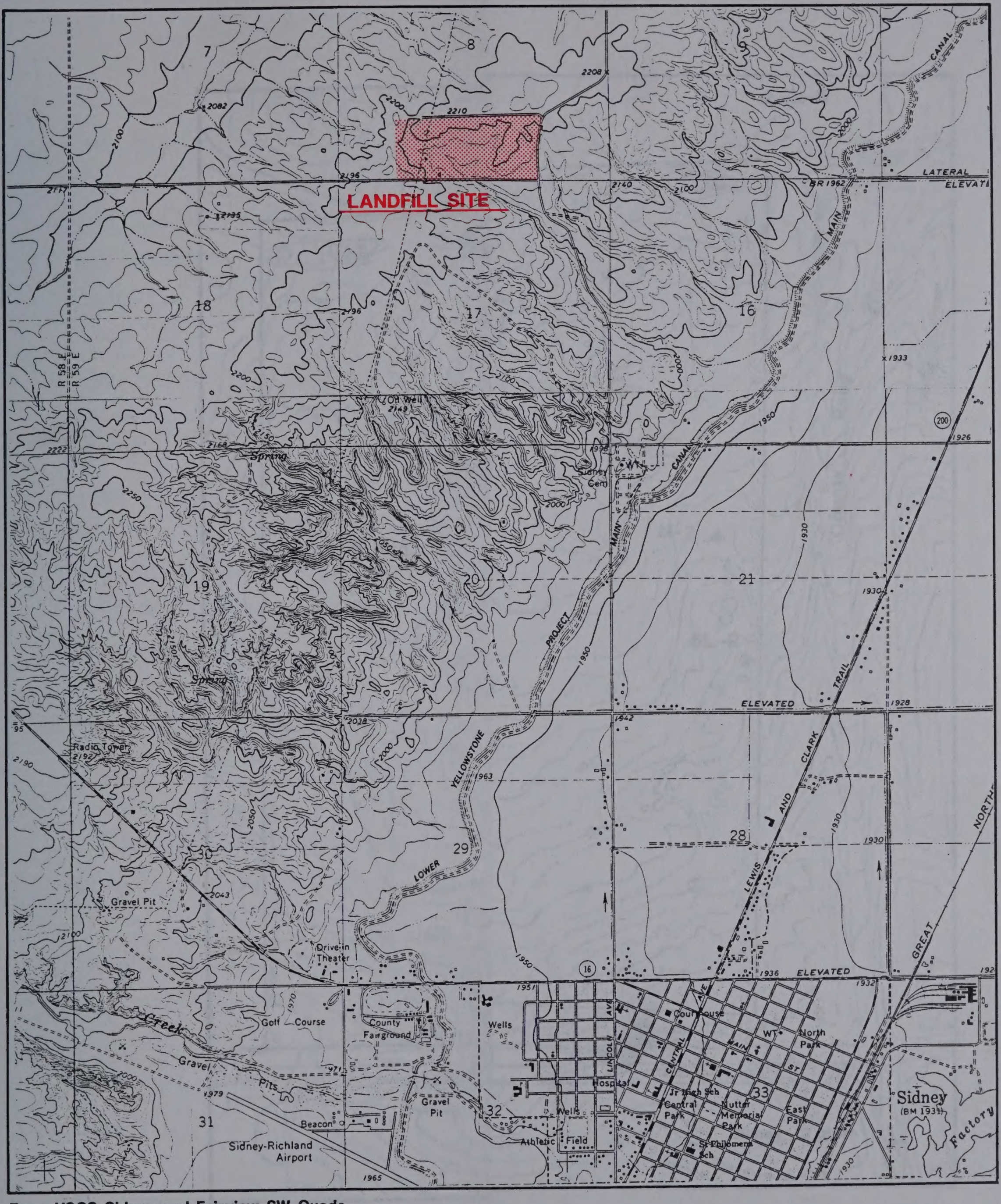
- The concentration of landfill gas does not exceed the LEL for methane at the facility property boundary.

The purpose of this document is to describe methods that will be used to implement a landfill gas monitoring program at the Richland County Sanitary Landfill to fulfill those requirements presented above. General elements of this monitoring plan include the following:

- The locations and frequency of landfill gas monitoring.
- Methods and equipment that will be used to monitor landfill gas at the facility.
- Procedures that will be used to document monitoring activities

2.0 GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS

The RCSWD landfill is located on an 80 acre parcel in SE¼ to the SW¼ of the SE¼ of Section 8, Township 23 North, Range 59 East, approximately three miles north of Sidney, Montana (Figure 1). The facility is located on an southwest-northeast trending ridge approximately 250 feet above and 1½ miles west of the Yellowstone River Valley (Figures 1 and 2).

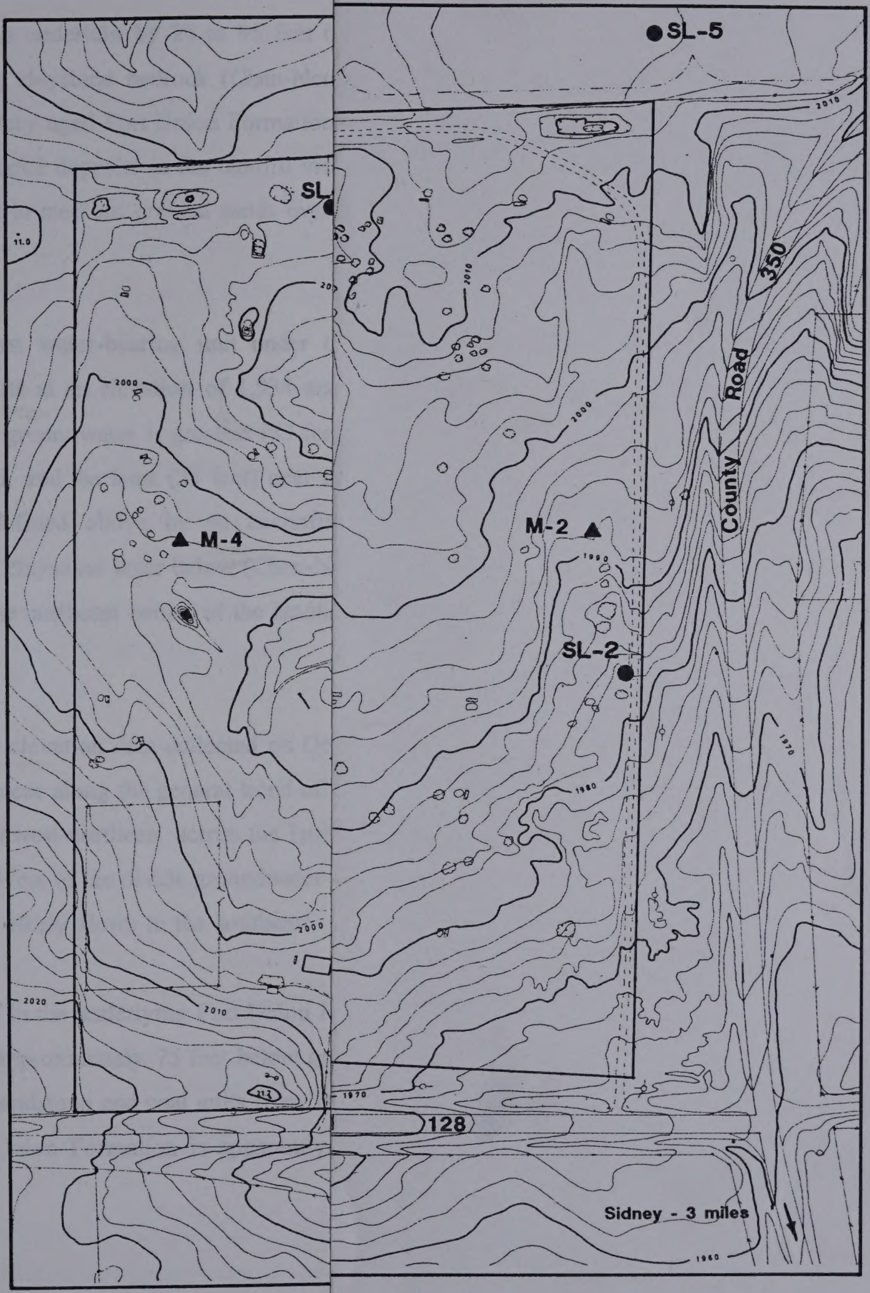


From USGS Sidney and Fairview SW Quads

Richland County, Montana

Location Map
Richland County Solid Waste District Landfill
Sidney, Montana
FIGURE 1

HE&E 90-3092



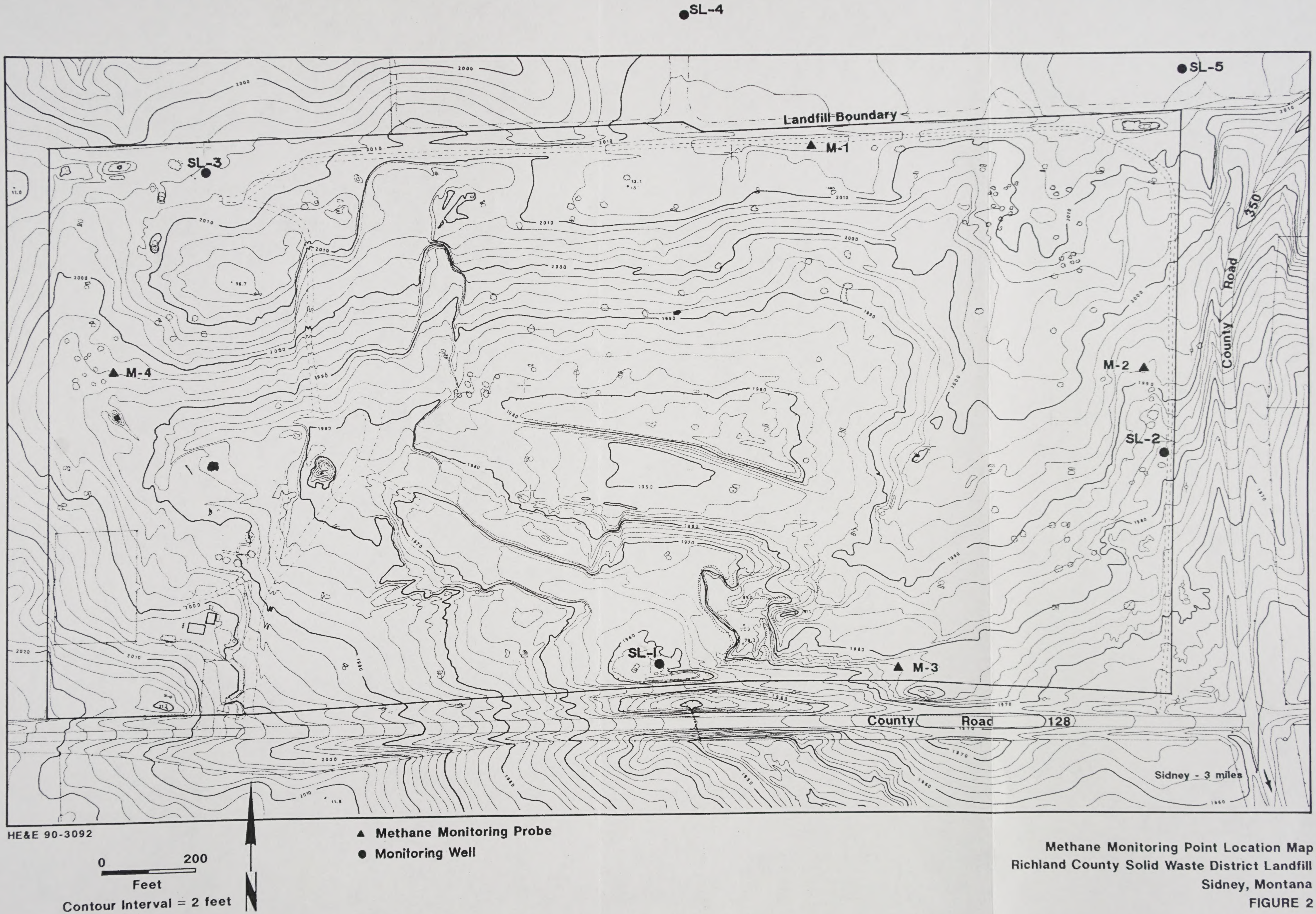
HE&E 90-3092

0 20

Feet

Contour Interval = 2

Methane Monitoring Point Location Map
Richland County Solid Waste District Landfill
Sidney, Montana
FIGURE 2



Methane Monitoring Point Location Map
Richland County Solid Waste District Landfill
Sidney, Montana
FIGURE 2

The facility is underlain by 26 to 95 feet of Pleistocene glacial deposits overlying a gently north dipping claystone bedrock (Chen-Northern, 1991). The claystone is likely associated with the Tertiary aged Fort Union Formation. Based on drill log information (Chen-Northern, 1991), the glacial deposits in the landfill vicinity consist of interlayered silt, silty fine grained sand and fine to medium grained sands overlying a basal layer of poorly sorted silty sand and pebbles.

The uppermost water-bearing unit under the landfill is encountered within the lowermost glacial deposits at an elevation of 1,934 and 1,936 feet above sea level (Huntingdon, 1994). The depth to groundwater is greatest (83 feet) near the top of the ridge at the northeast corner of the landfill, and the least (25 feet) near the southcentral property boundary. The saturated interval is defined above by an unconfined potentiometric surface and by a relatively impermeable claystone layer below (Chen-Northern, 1991). The water-bearing unit is thickest (15 feet) at the northeast corner of the landfill and thinnest (5 feet) at the southcentral property boundary.

Groundwater elevation data collected on October 19 to 21, 1994, suggests that a groundwater divide may occur along the general trend of the ridge that the landfill is located on. The divide may cut southwest-northeast across the landfill. However, the exact location of this divide is not known. West of the divide groundwater likely flows to the northwest and groundwater east of the divide likely flows to the southeast.

Groundwater in the underlying Fort Union Formation has been encountered in an on-site water supply well approximately 75 feet below ground surface (Chen-Northern, 1991). This well is screened in sandstone and coal units from 166 to 200 feet below ground surface. Groundwater in the Fort Union Formation is apparently confined by fine-grained siltstone and claystone units.

3.0 METHANE MONITORING METHODS

3.1 LANDFILL GAS MONITORING POINT LOCATIONS

Four permanent methane monitoring points were installed on October 18 and 19, 1994, at the landfill. In general, a methane probe was installed along each side of the facility property boundary. Figure 2 shows the locations of the monitoring probes.

3.2 MONITORING POINT INSTALLATION METHODS

Boreholes for the methane monitoring points were drilled using a hollow-stem auger drill rig. The boreholes were drilled by advancing six-inch diameter augers to the assumed elevation of the base of buried waste in the vicinity of each methane monitoring point. Only point M-2 actually encountered waste materials. The depths of the other points were based on well drill logs and the observed landfill topography.

Drill cuttings from each borehole were visually examined at the surface and lithologic characteristics recorded on field logs along with other pertinent information. Drilling logs and methane probe schematics are provided in Appendix A. The monitoring devices are constructed of 25 to 30 feet of two-inch diameter flush-threaded PVC 0.02-inch slotted screen and five to eight feet of two-inch diameter PVC casing. The bore-hole around the screened interval was backfilled with washed pea-gravel (3/8-inch minus). The upper five feet of the bore-hole was back filled with a hydrated bentonite seal. The top of the PVC casing was fitted with a PVC cap and valved sampling port.

3.3 LANDFILL GAS MONITORING LOCATIONS AND FREQUENCY

The explosive potential of landfill gas will be measured in each of the four monitoring points, all on-site groundwater monitoring wells and at buildings at the facility. Landfill gas monitoring events will be performed on a quarterly basis in accordance with ARM 16.14.521.

3.4 MONITORING EQUIPMENT AND PROCEDURES

The explosive potential of landfill gas will be measured using a combustible gas indicator. The combustible gas indicator will be calibrated on-site in accordance with the manufacturer's recommendations using a methane gas standard. Once the combustible gas indicator is calibrated, the percent LEL and oxygen concentrations will be measured in each landfill gas monitoring point.

Samples will be collected at the valved sampling port by connecting the LEL meter to the port, opening the valve, and drawing gas through the instrument. Gas will be withdrawn until approximately one-casing volume has been evacuated or until LEL and O_2 measurements appear to have stabilized.

The percent LEL will be measured in on-site groundwater monitoring wells by inserting the instrument probe into the well casing immediately after the lid to the wells are removed. The percent LEL in on-site buildings will be measured immediately upon entering the buildings and at obvious locations within the buildings where landfill gas would be expected to accumulate (e.g. floor drains, etc.).

3.5 DOCUMENTATION AND REPORTING

Instrument readings measured at each monitoring station will be recorded on a monitoring log. Appendix B includes an example of Huntingdon's landfill gas monitoring log. Weather conditions, including temperature and barometric pressure in the Richland County area for the day of each monitoring event, will be recorded on the monitoring log. The temperature will be recorded on-site and the barometric pressure will either be measured directly on-site or will be obtained from the National Weather Service in Billings, Phone Number (406)657-6988. Copies of the landfill gas monitoring log will be submitted to Richland County personnel immediately after completion of each monitoring event. Richland County personnel will file the monitoring logs in the operating record for the landfill.

If the LEL is exceeded in any monitoring device near the facility property boundary, field technicians will immediately notify Richland County personnel (Phone No. 482-2106). Richland County personnel will then notify the Montana Department of Health and Environmental Sciences, Solid Waste Bureau. Huntingdon will provide Damschen and Associates and the Richland County Commissioners with an updated methane monitoring data base each quarter. On a semi-annual basis, Huntingdon will prepare and submit an updated data base and a brief summary report to the MDHES.

4.0 REFERENCES CITED

Chen Northern, Inc. 1991, Hydrogeologic Characterization, Richland County Solid Waste District Sanitary Landfill, Sidney, Montana.

Huntingdon Engineering & Environemtal, Inc. 1994, Assessment Groundwater Monitroing Report, Richland County Sanitary Landfill, Sidney, Montana.

APPENDIX A

METHANE MONITORING POINT SCHEMATICS AND DRILL LOGS

METHANE MONITORING POINT DRILL LOG AND SCHEMATIC

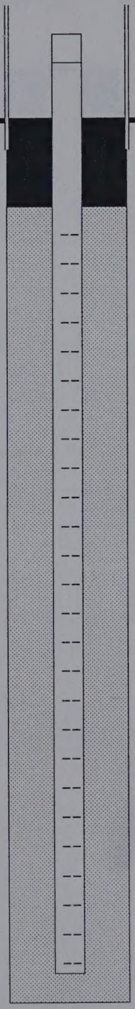
HUNTINGDON ENGINEERING & ENVIRONMENTAL

Monitoring Point #	M−1	Installation Date	10/19/94
Site	Richland County Landfill	Drilling Method	Flight Augers
Project #	90−3092	Drilled By	HIH−Bismarck
Location	North Property Boundary	Logged By	John Olson
	$\mathrm{SE}^{1}/_{4}$ of Sec 8, T23N, R59E	Comments	

M−1

Elev (ft)	Depth (ft)	Lithology
2014	0	
		Tan, sand, gravel and silt
2009	5	Interlayered tan fine−med sand
2004	10	
1999	15	
1994	20	
1989	25	

BORING TERMINATED AT 30 FT.



Construction

4−in Steel Protective Case

0 2−in PVC riser (2ft stick−up)

Hydrated

4 Bentonite

4

Pea−Gravel

2−in dia, 25−ft long,
0.01−in slot,
PVC Screen

29

METHANE MONITORING POINT DRILL LOG AND SCHEMATIC

HUNTINGDON ENGINEERING & ENVIRONMENTAL

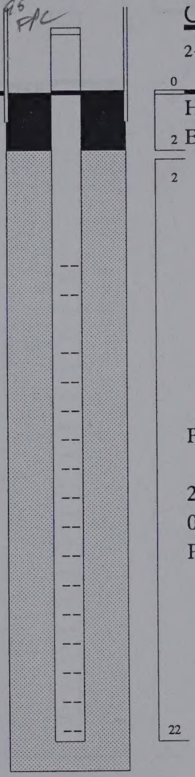
Monitoring Point #	M−2	Installation Date	10/20/94
Site	Richland County Landfill	Drilling Method	Flight Augers
Project #	90−3092	Drilled By	HIH−Bismarck
Location	East Property Boundary	Logged By	John Olson
	SE$^1/_4$ of Sec 8, T23N, R59E	Comments	

as per John Olson 2/9/95 FPC

Elev (ft)	Depth (ft)	Lithology
1982	0	Ground Elev= 1982
		Silty Sand w/gravel
1977	5	
1972	10	
		—13'
1967	15	MSW
1962	20	silty sand

BORING TERMINATED AT 23 FT.

M−2



Construction

2−in PVC riser (2−ft stick−up)

Hydrated Bentonite

Pea−Gravel

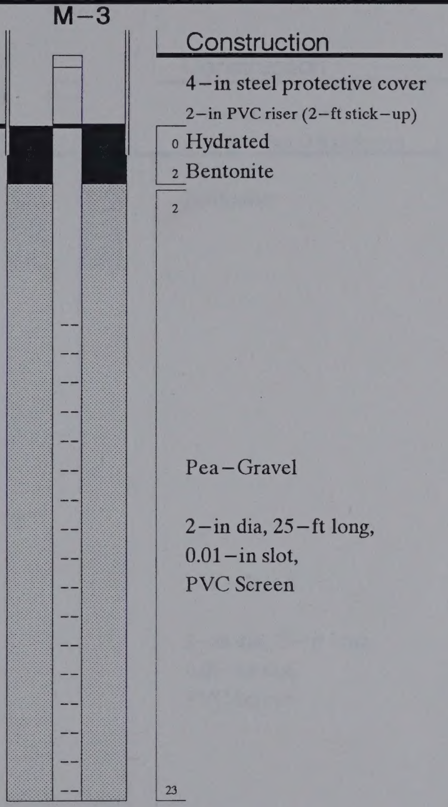
2−in dia, 25−ft long, 0.01−in slot, PVC Screen

METHANE MONITORING POINT DRILL LOG AND SCHEMATIC
HUNTINGDON ENGINEERING & ENVIRONMENTAL

Monitoring Point #	M-3	Installation Date	10/19/94
Site	Richland County Landfill	Drilling Method	Flight Augers
Project #	90-3092	Drilled By	HIH-Bismarck
Location	South Property Boundary SE$^1/_4$ of Sec 8, T23N, R59E	Logged By Comments	John Olson

Elev (ft)	Depth (ft)	Lithology
1978	0	
		Brown, fine sandy silt, some gravel
1973	5	
		Tan, fine-med silty sand
1968	10	
		Brown, fine sandy silt
1963	15	
		1 ft gravel layer
1958	20	

BORING TERMINATED AT 23 FT.



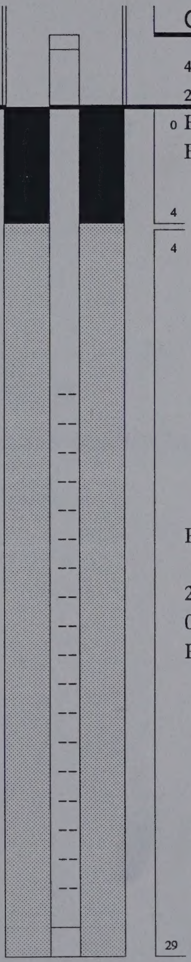
METHANE MONITORING POINT DRILL LOG AND SCHEMATIC
HUNTINGDON ENGINEERING & ENVIRONMENTAL

Monitoring Point #	M-4	Installation Date	10/19/94
Site	Richland County Landfill	Drilling Method	Flight Augers
Project #	90-3092	Drilled By	HIH-Bismarck
Location	West Property Boundary $SW^1/_4$ of Sec 8, T23N, R59E	Logged By	John Olson
		Comments	

M-4

Elev (ft)	Depth (ft)	Lithology
1996	0	Tan, silty fine sand, some garvel
1991	5	Tan, silty fine-med sand
1986	10	
1981	15	
1976	20	
		1 ft gravel layer
1971	25	

BORING TERMINATED AT 29 FT.



Construction

4-in steel protective cover

2-in PVC riser (2 ft stick-up)

Hydrated Bentonite

Pea-Gravel

2-in dia, 25-ft long, 0.01-in slot, PVC Screen

APPENDIX B
LANDFILL GAS MONITORING FIELD LOG

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill ____________ Weather: ________________

Project #: 90-3092 ____________________ Temperature: ________ units

Date: ______________________________ Barometric Pressure: ____ units

Data Collected By: __________________ Comments: ______________

Instrument: ____

Calibrated To: Methane [ ] Hexane [ ] Isobutylene [ ]

Calibration Date: ____________________

STATION LOCATION	TIME	PERCENT LEL	COMMENTS

BARRY DAMSCHEN CONSULTING, LLC

Engineering • Solid Waste Management

METHANE MONITORING FIELD DATA SHEET

Facility: Closed Richland County Landfill License #: 102

Date: 10·4·22 Time: 1500 Sampler: ML HENDRICKSON

Air Temperature: 70°, sunny, breezy

Other Weather Conditions:

Location	Methane	Carbon Dioxide	Oxygen	Comments
M-1	0	4.7	13.0	
M-2	0	7.8	10.2	
M-3	0	5.1	11.5	

Notes: ground wet from recent rains

BARRY DAMSCHEN CONSULTING, LLC #102

Engineering • Solid Waste Management

February 21, 2023

RECEIVED

FEB 27 2023

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

Mike Eder
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620

Dear Mike:

Enclosed please find a summary of the Year 2022 methane monitoring results from the closed Richland County landfill. There was no methane detected in any of the wells.

If you have any questions or require any additional information, please do not hesitate to contact us.

Sincerely,
BARRY DAMSCHEN CONSULTING, LLC

Barry E. Damschen, P.E.
Project Manager

cc: Richland County

Enclosure

5317 Harbor Lane • Helena, MT 59602 • Phone (406) 461-5003

CLOSED RICHLAND COUNTY LANDFILL
METHANE MONITORING RESULTS

(All results in percent of total sample)

Quarter	Date	#1	#2	#3	
1	2/16/22	0	0.5	0.2	CO_2
		0	0	0	Methane
		16.6	16.3	16.8	Oxygen
2	6/18/22	NR	NR	NR	CO_2
		NR	NR	NR	Methane
		NR	NR	NR	Oxygen
3	7/9/22	3.3	0.5	6.9	CO_2
		0	0	0	Methane
		13.9	15.2	10.6	Oxygen
4	10/4/22	4.7	7.8	5.1	CO_2
		0	0	0	Methane
		13.0	10.2	11.5	Oxygen

NR = Too muddy

BARRY DAMSCHEN CONSULTING, LLC

Engineering • Solid Waste Management

#102 closed - Richland county Landfill

RECEIVED

MAR 0 8 2022

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

February 21, 2022

Mike Eder
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620

Dear Mike:

Enclosed please find a summary of the Year 2021 methane monitoring results from the closed Richland County landfill. There was no methane detected in any of the wells.

If you have any questions or require any additional information, please do not hesitate to contact us.

Sincerely,
BARRY DAMSCHEN CONSULTING, LLC

Barry E. Damschen, P.E.
Project Manager

cc: Richland County

Enclosure

5317 Harbor Lane • Helena, MT 59602 • Phone (406) 461-5003

CLOSED RICHLAND COUNTY LANDFILL
METHANE MONITORING RESULTS
(All results in percent of total sample)

Quarter	Date	#1	#2	#3	
					CO2
					Methane
					Oxygen
2	6/16/21	3.7	4.1	3.7	CO2
		0	0	0	Methane
		14.9	14.3	14.5	Oxygen
3	9/15/21	4.0	6.2	0	CO2
		0	0	0	Methane
		14.4	12.4	16.4	Oxygen
4	10/20/21	3.8	6.5	1.2	CO2
		0	0	0	Methane
		13.6	11.9	13.6	Oxygen

Note: Readings were started by
Barry Damschen Consulting, LLC
for the second quarter, 2021

BARRY DAMSCHEN CONSULTING, LLC

Engineering • Solid Waste Management

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FEB 04 2022
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

SCANNED

METHANE MONITORING FIELD DATA SHEET

Facility: Closed Richland County Landfill

License #: ~~220~~ 102

Date: 10/20/2021 Time: 10:45 Sampler:

Air Temperature: 35°

Other Weather Conditions: cloudy, brezzy

Location	Methane	Carbon Dioxide	Oxygen	Comments
#2	0	6.5	11.9	
#1	0	3.8	13.6	
#3	0	1.2	13.6	

Notes:

BARRY DAMSCHEN CONSULTING, LLC

Engineering • Solid Waste Management

January 7, 2022

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FEB 0 4 2022

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

Mike Eder
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620

Dear Mike:

Please find enclosed my fourth quarter (2021) field sheets for the eighteen landfills which I monitor for methane. Please call if you have any questions.

Very truly yours,
BARRY DAMSCHEN CONSULTING, LLC

Barry E. Damschen, P.E.
Project Manager

Enclosures

5317 Harbor Lane • Helena, MT 59602 • Phone (406) 461-5003

BARRY DAMSCHEN CONSULTING, LLC

Engineering • Solid Waste Management

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JUL 27 2022
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

METHANE MONITORING FIELD DATA SHEET

Facility: Closed Richland County Landfill

License #: ~~220~~ 102

Date: JUNE 6, 2022 Time: 0930

Sampler: ML HENDRICKSON

Air Temperature: 65°

Other Weather Conditions: sunny, breezy

Location	Methane	Carbon Dioxide	Oxygen	Comments
TOO	MUDDY TO	REACH	MONITORING	WELLS

Notes:

BARRY DAMSCHEN CONSULTING, LLC

Engineering • Solid Waste Management

METHANE MONITORING FIELD DATA SHEET

Facility: Closed Richland County Landfill

License #: 220

Date: 2-16-22

Time: 0925

Sampler: B DAMSCHEN

Air Temperature: 13°

Other Weather Conditions: cold, windy

Location	Methane	Carbon Dioxide	Oxygen	Comments
M-2	0	0.5	16.3	
M-1	0	0.1	16.6	
M-3	0	0.2	16.8	

Notes:

Methane Monitoring Field Data Sheet

Facility: Richland County Landfill

License #: ~~220~~ 102

Date: 9-15-21

Time: 1515

Sampler: B. DAMSCHEN

Air Temperature: 85°

Other Weather Conditions: sunny, windy

Location	Methane	Carbon Dioxide	Oxygen	Comments
#2	0	6.2	12.4	
#1	0	4.0	14.4	
#3	0	0	16.4	

Notes:

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SEP 29 2021
DEPT. OF ENVIRO. QUALITY
WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

SCANNED

BARRY DAMSCHEN CONSULTING, LLC

Engineering • Solid Waste Management

October 21, 2022

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NOV 22 2022
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

Mike Eder
Montana Department of Environmental Quality
Waste and Underground Tank Management Bureau
Solid Waste Program
P.O. Box 200901
Helena, MT 59620-0901

Dear Mike:

Please find enclosed my third quarter (2022) field sheets for the twenty landfills which I monitor for methane. Please do not hesitate to call me if you have any questions.

Very truly yours,
BARRY DAMSCHEN CONSULTING, LLC

Barry E. Damschen, P.E.
Project Manager

Enclosures

5317 Harbor Lane • Helena, MT 59602 • Phone (406) 461-5003

BARRY DAMSCHEN CONSULTING, LLC

Engineering • Solid Waste Management

METHANE MONITORING FIELD DATA SHEET

Facility: Closed Richland County Landfill

License #: 102

Date: 7/19/22

Time: 9:25

Sampler: ML Hendrickson
C Stewart

Air Temperature: 68° windy, cloudy, rain

Other Weather Conditions:

Location	Methane	Carbon Dioxide	Oxygen	Comments
M-1	0	3.3	13.9	
M-2	0	0.5	15.2	
M-#3	0	6.9	10.6	

Notes:

County Richland

Facility & # 102

Closure

Finan Assur

GW Corr Meas

GW Monitoring

GW Reports

Inspections

Other: ____________________

Landfarm

Liner

[✓ Methane]

O & M

Run-on

TS70
139439

D

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: 7-5-18 **DATA COLLECTED BY:** J. Johnson

CALIBRATED TO METHANE:

INSTRUMENT: EAGLE 2

WEATHER: Clear Sunny,

TEMPERATURE: 71° **WIND:** SE @ 6 mph

	STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
10:28	M-1	10:28 START 10:35	0%	—	16.4%	
10:38	M-2	10:45	0%	—	15.8%	
10:51	M-3	10:58	2%	—	13.8%	

RECEIVED
JUL 09 2018
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

County Richland

Facility & # 102

Closure

Finan Assur

GW Corr Meas

GW Monitoring

GW Reports

Inspections

Other:

Landfarm

Liner

[✓ Methane]

O & M

Run-on

Nelsen, Sara

From:	Collins, John
Sent:	Thursday, May 31, 2018 1:34 PM
To:	DEQ SW Program
Subject:	FW: Richland County, MT - Landfill 102 Methane Results
Attachments:	20180531 102 Methane Data.pdf

87

RECEIVED
MAY 31 2018
De[illegible]
W[illegible] [illegible]. Quality
Tan[illegible] [illegible]erground
[illegible]ent Bureau

From: Joshua Johnson [mailto:jjohnson@richland.org]
Sent: Thursday, May 31, 2018 1:31 PM
To: Collins, John <JCollins3@mt.gov>
Subject: Richland County, MT - Landfill 102 Methane Results

John,

Attached please find your file copy of the methane sample results from Landfill 102.

As an FYI, I will be taking over the monitoring of the Richland County Landfills from Kelly Logan within the next 6 months or so. Once Kelly gets me up to speed with everything. Please find my contact information is below.

Please feel free to contact me with any questions or comments.

--
Thank You,
Josh Johnson

Richland County Public Works
2140 West Holly
Sidney, MT 59270
406-433-2407
jjohnson@richland.org

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: 5-31-18 | DATA COLLECTED BY: J. Johnson

CALIBRATED TO METHANE: 50% LEL

INSTRUMENT: RKI - EAGLE Z

WEATHER: PARTLY CLOUDY, HUMIDITY 88%

TEMPERATURE: 59° | WIND: NE @ 0-5 mph

STATION	TIME	CH_4 PERCENT LEL	PERCENT VOL	% O_2	COMMENTS
M-1	7:35	0%		17.7	
M-2	7:12	0%		20.1	
M-3	7:55	0%		14.2	

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Other: ______

Landfarm

Liner

[✓ Methane]

O & M

Run-on

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: January 6, 2018 **COLLECTED BY:** kl

INSTRUMENT: RKI Eagle 2 **CALIBRATED TO 50% CH4 & 12% O2**

WEATHER: partly cloudy 23°F **WIND:** NW @ 10 MPH

STATION	TIME	LEL	% OXYGEN	% CH_4	COMMENTS
M-1	0939	0	18.0		
M-2	0948	0	15.0		
M-3	1008	0	15.0		

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Other:

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: October 10, 2017

COLLECTED BY: kl

INSTRUMENT: RKI Eagle 2

CALIBRATED TO 50% CH4 & 12% O2

WEATHER: mostly clear 58°F

WIND: SSW @ 12 MPH

STATION	TIME	LEL	% OXYGEN	% CH_4	COMMENTS
M-1	1300	3	17.0		
M-2	1250	2	13.5		
M-3	1315	2	13.0		

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METHANE MONITORING WELLS
SIDNEY LANDFILL # 102

DATE: July 31, 2017

COLLECTED BY: kl

INSTRUMENT: RKI Eagle 2

CALIBRATED TO 50% CH4 & 12% O2

WEATHER: sunny, 73°F

WIND: NE @ 15 MPH

STATION	TIME	LEL	% OXYGEN	% CH_4	COMMENTS
M-1	0855	0	20.9		
M-2	0906	0	20.5		
M-3	0841	2	18.0		

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Other: ________________

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METHANE MONITORING WELLS
SIDNEY LANDFILL # 102

DATE: April 19, 2017 **COLLECTED BY:** kl

INSTRUMENT: RKI Eagle 2 **CALIBRATED TO 50% CH4 & 12% O2**

WEATHER: overcast 48°F **WIND:** SE @ 8 MPH

STATION	TIME	LEL	% OXYGEN	% CH_4	COMMENTS
M-1	0850	0	18.5		
M-2	0908	0	19.0		
M-3	0925	0	15.5		

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: February 23, 2017

COLLECTED BY: kl

INSTRUMENT: RKI Eagle 2

CALIBRATED TO 50% CH4 & 12% O2

WEATHER: overcast 28°F

WIND: NW @ 12 MPH

STATION	TIME	LEL	% OXYGEN	% CH_4	COMMENTS
M-1	0931	0	20.9		
M-2	0945	0	20.9		
M-3	0900	0	17.5		

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Aug 5, 2016 | DATA COLLECTED BY: KJ

CALIBRATED TO METHANE: 50% CH_4 12% O_2

INSTRUMENT: RKI Eagle II

WEATHER: Sunny clear

TEMPERATURE: ≈ 75° | WIND: — @ mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
M-1	1100	0		19.5	
M-2	1113	0		15.0	
M-3	0959	50%		16.5	
M-4					

DATE: Oct 10, 2016 | DATA COLLECTED BY: KJ

CALIBRATED TO METHANE: 50% CH_4

INSTRUMENT: RKI Eagle II

WEATHER: P. cldy

TEMPERATURE: 43° | WIND: NNW @ 15 mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
M-1	1041	0		18.0	
M-2	1050	0		14.5	
M-3	1020	0		15.5	
M-4					

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#102

7015 0640 0003 7871 7152

October 3, 2016

Mr. Adam Smith
Director of Public Works
Richland County Landfill
2140 West Holly St.
Sidney, MT 59270

Re: Determination of Underground Storage Tank Status for Richland County Landfill Gas Extraction Facility

Dear Mr. Smith:

I have reviewed your submittal documenting the operational characteristics of the Richland County Landfill Gas Extraction proposed facility storing leachate. The department will not regulate this system as proposed as an underground storage tank within the Underground Storage Tank (UST) Section. Regulatory authority for the storage of leachate will remain wholly with the department's Solid Waste Section.

This decision is based on the determination that the municipal solid waste (or Montana Class II) leachate (hereinafter referred to as leachate) is regulated by the Solid Waste Section as a waste. The Underground Storage Tank Section regulates petroleum and hazardous substance UST systems. The UST Section does not regulate substances, however, that are hazardous wastes under RCRA Subtitle C. Leachate is not a listed or unlisted hazardous substance because it is excluded from regulation as a hazardous waste when conditions provide for its treatment through regulated methods. These treatment methods include recirculation into the waste unit (landfill), treatment at a publicly owned treatment works (POTW), or other such exceptions. The Department is aware that this leachate will be treated by one of these two methods.

Additional facts that support this determination are that the proposed design is within the property limits of the landfill that employs groundwater monitoring, and the system is designed with secondary containment (with one minor modification conveyed to the Solid Waste Section).

Please contact me with any questions regarding this determination. Also, contact Mary Louise Hendrickson in the department's Solid Waste Section at 406.444.1808 for further assistance as you continue to refine this design for storing leachate.

Regards,

Leanne Hackney
Underground Storage Tank Section Supervisor
Waste and Underground Tank Management Bureau
Underground Storage Tank Section
406.444.0485
lhackney@mt.gov

Cc: Mary Louise Hendrickson, DEQ/WUTMB/SWS

County Richland
Facility & # 102

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GW Reports
Inspections
Other:

Landfarm
Liner
[✓ Methane]
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Run-on

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: April 10, 2015 | **DATA COLLECTED BY:** KB

CALIBRATED TO METHANE: 50% CH_4 + 12% O_2

INSTRUMENT: RKI Eagle II

WEATHER: Sunny

TEMPERATURE: T≈40°F | **WIND:** WSW @ 15 mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
SL-1	1046	34	—	<10	
SL-2	1057	0	—	18.0	
SL-3	1230	0	—	20.0	
SL-4	1500	0	—	20.9	SL-16 needs some
SL-5	1113	0	—	20.9	
SL-17	1154	96	—	<10	
SL-18	1146	45	—	<10	
SL-19	1202	2	—	20.9	
SL-20	1221	0	—	17.5	
SL-22	1209	0	—	20.9	
M-1	1139	0		17.5	
M-2	1107	0		15.0	
M-3	1038	0		16.5	
M-4	1240	0		18.0	

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Nov 23, 2015 | **DATA COLLECTED BY:** KL

CALIBRATED TO METHANE: 50% CH_4

INSTRUMENT: RKI Eagle II

WEATHER: overcast

TEMPERATURE: 40° | **WIND:** – @ mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
SL-1	1340	63	~~<10~~	<10	
SL-2	1351	0		14.5	
SL-3	1500	0		14.5	
SL-4	1626	0		20.9	
SL-5	1410	0		20.9	
SL-17	1432	86		<10	
SL-18	1426	24		<10	
SL-19	1445	85		<10	
SL-20	1453	0		<10	
SL-22	1438	70		<10	
M-1	1417	0		18.0	
M-2	1357	0		14.5	
M-3	1328	0		16.5	
M-4	1507	0		19.0	
SL-23	1456	0		11.0	
SL-24	1551	1		<10	

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Aug 5, 2016 | **DATA COLLECTED BY:** KJ

CALIBRATED TO METHANE: 50% CH_4 12% O_2

INSTRUMENT: RKI Eagle II

WEATHER: Sunny clear

TEMPERATURE: ≈ 75° | **WIND:** — @ mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
M-1	1100	0		19.5	
M-2	1113	0		15.0	
M-3	0959	50%		16.5	
M-4					

DATE: | **DATA COLLECTED BY:**

CALIBRATED TO METHANE:

INSTRUMENT:

WEATHER:

TEMPERATURE: | **WIND:** @ mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
M-1					
M-2					
M-3					
M-4					

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Mar 15, 2016 **DATA COLLECTED BY:** KL

CALIBRATED TO METHANE: 50% CH_4 12% O_2

INSTRUMENT: RKI Eagle II

WEATHER: overcast

TEMPERATURE: 47° **WIND:** WNW @ 25 mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
M-1	1455	0		18.5	
M-2	1442	0		20.9	
M-3	1428	0		18.5	
M-4	1510	0		19.5	

DATE: April 1, 2016 **DATA COLLECTED BY:** KL

CALIBRATED TO METHANE: 50% CH_4 12% O_2

INSTRUMENT: RKI Eagle II

WEATHER: overcast

TEMPERATURE: 42° **WIND:** NW @ 12 mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
M-1	1218	0		17.5	
M-2	1228	0		15.0	
M-3	1154	0		14.5	
M-4	1205	0		20.3	

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Liner

[✓ Methane]

O & M

Run-on

Other: ____________________

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Aug 28, 2015 **DATA COLLECTED BY:** JQ

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: RKI Eagle II

WEATHER: Smokey

TEMPERATURE: ≈ 64° **WIND:** calm @ mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
SL-1	0952	72		<10	
SL-2	1005	2		15.5	
SL-3	1104	0		19.0	
SL-4	1050	1		20.7	
SL-5	0930	2		20.9	
SL-17	1018	3		20.9	
SL-18	1001	71		<10	
SL-19	1021	—	7.0	<10	
SL-20	1044	0		11	
SL-22	1038	7		20.9	
M-1	0945	1		16.0	
M-2	0920	6		13.5	
M-3	0938	2		16.0	
M-4	1122	0		17.0	

County Richland
Facility & # 102

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Other:

1/15/15 mfm

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: JAN 2, 2015 | DATA COLLECTED BY: KS

CALIBRATED TO METHANE: 50% CH_4 reads 50%

INSTRUMENT: RKI EAGLE II

WEATHER: mostly clear

TEMPERATURE: T ≈ 25° | WIND: WNW @ 7 mph

STATION	TIME	PERCENT LEL	O_2	PERCENT VOLUME	COMMENTS
SL-1	1121				
SL-2	1139	0	12.0		
SL-3	1256	0	<10		
SL-4	1343	0	20.9		
SL-5	1157	0	20.9		
M-1	1217	0	16.5		
M-2	1147	0	13.5		
M-3	1121	0	13.5		
M-4	1306	0	18.0		
SL-7	1353	0	20.9		
SL-8	1332	0	10.0		
SL-9	1322	0	20.9		
SL-17	1227	—	0	5.5	
SL-18	1220	86	0.1		
SL-19	1238	100	0.8		
SL-22	1235	—	0.1	8.5	

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Oct 7, 2014 **DATA COLLECTED BY:** JO

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: ~~slight over~~ RKI Eagle II

WEATHER: slight overcast

TEMPERATURE: t= 50° **WIND:** NW @ 20 mph

STATION	TIME	PERCENT LEL	O_2	PERCENT VOLUME	COMMENTS
SL-1	1100	—	<10	65	
SL-2	1112	0	16.5		
SL-3	1303	2	20.9		
SL-4	1459	0	20.4		
SL-5	1600	0	20.9		
M-1	1050	0	17.0		
M-2	1125	0	20.9		
M-3	1141	0	19.0		
M-4	1319	0	17.5		
SL-17	1220	0	20.9		
SL-18	1203				
SL-19	1240		20.9		
SL-20	1245	0			

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: July 8, 2014 **DATA COLLECTED BY:** KQ

CALIBRATED TO METHANE: 50% CH4 reads 49%

INSTRUMENT: RKI Eagle II

WEATHER: P. cldy, hazy

TEMPERATURE: ≈ 70° **WIND:** NW **@** 15 **mph**

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
SL-1	1119	54	~~40~~	<10	
SL-2	1130	0		20.9	
SL-3	1247	1		20.6	
SL-4	1329	0		20.9	
SL-5	1420	0		20.9	
SL-17	1212	4		20.9	
SL-18	1205	73		<10	
SL-19	1221	2		17	
SL-20	1238	0		20.9	
SL-22	1228	0		20.9	
M-1	1158	0		20.3	
M-2	1139	0		17.5	
M-3	1110	0		18.5	
M-4	1259	0		18.5	

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: April 9, 2014 **DATA COLLECTED BY:** KQ

CALIBRATED TO METHANE: 50% CH_4 [illegible] 50%

INSTRUMENT: RKI Eagle II

WEATHER: mostly sunny

TEMPERATURE: ≈ 60° **WIND:** NW @ 30 mph ±

STATION	TIME	PERCENT LEL	O_2	PERCENT VOLUME	COMMENTS
SL-1	1356	30	<10		
SL-2	1405	0	17.5		
SL-3	1516	0	20.9		
SL-4	1455	0	20.9		
SL-5	1647	0	20.9		
M-1	1424	0	18.5 ←	18.5 O_2	
M-2	1413	0	20.5 ←	20.5 O_2	
M-3	1348	0	16.5		
M-4	1527	0	18.5		

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Nov 19, 2013 | **DATA COLLECTED BY:** KB

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: RKI Eagle II

WEATHER: Overcast,

TEMPERATURE: ≈ 30°F | **WIND:** NW @ 5 mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
SL-1	1040	—	8.0	<10	
SL-2	1058	0		14.0	
SL-3	1152	0		17.0	
SL-4	1444	0		20.9	
SL-5	1116	0		20.9	
SL-17	1224		8.5	<10	
SL-18	1229		5.0	<10	
SL-19	1211		7.5	<10	
SL-20	1159	0		15.0	
SL-22	1218		10.5	<10	
M-1	1135	0		18.0	
M-2	1107	0		13.5	
M-3	1051	0		16.0	
M-4	1145	0		17.5	

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WASTE & UNDERGROUND TANK
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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: July 17, 2013 **DATA COLLECTED BY:** 10

CALIBRATED TO METHANE: calibrated with 50% CH_4

INSTRUMENT: Eagle II RKI

WEATHER: overcast

TEMPERATURE: ≈ 75° **WIND:** — @ mph

STATION	TIME	PERCENT LEL	O_2	PERCENT Volume	COMMENTS
9.........SL-1	1114	64%	<10		
7.........SL-2	1124	5	14.5		
2.........SL-3	1247	1	20.0		
3.........SL-4	1336	0	20.9		
5.........SL-5	1424	2	20.9		
4.........M-1	1159	0	16.5		
6.........M-2	1137	0	11.0		
8.........M-3	1105	15%	13.5		
1.........M-4	1306	0	16.5		

SL-17 @1214 67% 11.0

SL-18 @1208 79% <10

SL-20 @1226 94% <10

SL-21 @1146 0 15.0

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: April 9, 2013 **DATA COLLECTED BY:** ld

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: RKI Eagle II

WEATHER: P. cldy

TEMPERATURE: 27° F **WIND:** — @ mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
9……..SL-1	1633	41		<10	
7……..SL-2	1524	0		16.0	
2……..SL-3	1556	0		20.9	
3……..SL-4	1609	0		20.9	
5……..SL-5	1618	0		20.9	
4………M-1	1540	0		17.0	
6………M-2	1532	0		14.0	
8………M-3	1640	0		15.5	
1………M-4	1549	0		19.0	
SL-17	1603	68% LEL	—	<10	

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Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: JAN 6, 2013 | **DATA COLLECTED BY:** Kd

CALIBRATED TO METHANE: 50% = 50%

INSTRUMENT: RKI EAGLE II

WEATHER: P. cldy

TEMPERATURE: ≈ 18° | **WIND:** SW @ 15 mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
SL-1	1245	79		<10	
SL-2	1350	0		12.5	
SL-3	1306	0		<10	
SL-4	1324	0		20.9	
SL-5	1337	0		20.9	
SL-17	1312	—	6.5	<10	
M-1	1328	0		20.9	
M-2	1341	0		12.5	
M-3	1237	0		13.5	
M-4	1300	0		17.5	

SL-17 1312 — 6.5 <10

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Oct 14, 2012 | DATA COLLECTED BY: Kl

CALIBRATED TO METHANE: 50% [illegible] 50%

INSTRUMENT: RKI Eagle 2

WEATHER: clear

TEMPERATURE: ≈ 65 | WIND: NW @ 20 mph

STATION	TIME	PERCENT LEL	PERCENT VOL	O_2	COMMENTS
SL-1	1232	90		<10	
SL-2	1214	0		20.9	
SL-3	1141	0		18	
SL-4	1000	0		20.9	
SL-5	1120	0		20.9	
SL-17	1132	—	6.5	<10	
M-1	1159	0		17.8	
M-2	1209	0		13.5	
M-3	1226	0		16.8	
M-4	1151	0		19.5	

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JUL 09 2012
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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: July 4, 2012 | **DATA COLLECTED BY:** KQ

CALIBRATED TO METHANE: 50% CH4 calibrated to 50% CH4

INSTRUMENT: Eagle RKI II

WEATHER: clear

TEMPERATURE: ≈83° | **WIND:** NW **@** 20 **mph**

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9……..SL-1	1445	26	<10	
7……..SL-2	1453	0	17.5	
2……..SL-3	1540	0	20.9	
3……..SL-4	1655	0	20.9	
5……..SL-5	1510	0	20.9	
4………M-1	1520	0	18.0	
6………M-2	1500	0	16.0	
8………M-3	1433	0	17.5	
1………M-4	1550	0	19.0	
SL-17	1530	0	20.9	

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: April 15 2012 | DATA COLLECTED BY: 1Q

CALIBRATED TO METHANE: 50% CH_4 needs 50%

INSTRUMENT: RKI Eagle 2

WEATHER: getting cldy

TEMPERATURE: ≈ 60° | WIND: NW @ 20 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1554	22	12	
7........SL-2	1608	0	17	
2........SL-3	1645	1	20.9	
3........SL-4	1726	0	20.9	
5........SL-5	1628	0	20.9	
4.........M-1	1630	1	20	
6.........M-2	1615	0	19.5	
8.........M-3	1550	0	18.5	
1.........M-4	1640	1	19.5	

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Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: JAN 9, 2012 **DATA COLLECTED BY:** IQ

CALIBRATED TO METHANE: 50% CH_4 reads 49%

INSTRUMENT: RKI Eagle 2

WEATHER: clear, sunny

TEMPERATURE: ≈ 50°F **WIND:** WSW @ 25 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1315	92%	<10	
7........SL-2	1324	0	19.0	
2........SL-3	1411	0	15.0	
3........SL-4	1435	0	20.9	
5........SL-5	1345	0	20.9	
4.........M-1	1400	1	16	
6.........M-2	1339	1	12.5	
8.........M-3	1305	0	17.0	
1.........M-4	1423	0	19.0	
SL-17	1406	100%	<10	NE CORNER of deep cell by clay pile

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Oct 10, 2011 | DATA COLLECTED BY: JO

CALIBRATED TO METHANE: 50% city reads ~45%

INSTRUMENT: RKI Eagle II

WEATHER: overcast 1

TEMPERATURE: T ≈ 50° | WIND: SW @ 3 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	0912	76	<10	
7........SL-2	1215	2	15.0	
2........SL-3	0940/0946	0	17.0	
3........SL-4	1002/	0	209	
5........SL-5	1146/1152	0	209	
4.........M-1	0953/0956	0	17.0	
6.........M-2	1200/1212	5	10.5	
8.........M-3	0853/0904	0	15.0	
1.........M-4	0924/0935	0	17.5	

Van Oort, Martin

From: Kelly Logan [klogan@richland.org]
Sent: Monday, September 19, 2011 5:17 PM
To: Van Oort, Martin
Cc: 'Russell Huotari'; 'Pearson, Mark F.'
Subject: Methane readings - richland county

Martin,

I ran methane this weekend and at landfill #376 LG2 exceeded 100%. At landfill 102 the methane reading at SL-1 was 100%, and at M-1 it was 65%. Results will be in the mail tomorrow morning (if I get here before the phone starts ringing).

Kelly

To: martin vanOort

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Sept 16, 2011 | DATA COLLECTED BY: JQ

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: Eagle 2, RKI

WEATHER: clear

TEMPERATURE: | WIND: SSW @ 20 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1408/1420	100	<10	
7........SL-2	1427/1435	2	13.5	
2........SL-3	1533/1546	0	<10	
3........SL-4	1626/	0	20.9	
5........SL-5	1452/1502	0	20.9	
4.........M-1	1504/1516	0	15.5	
6.........M-2	1438/1450	0	11.0	
8.........M-3	1340/1400	65%	14.5	
1.........M-4	1524/1530	1	16.5	

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METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: April 25, 2011 | DATA COLLECTED BY: TG

CALIBRATED TO METHANE: 50% City reads 50%

INSTRUMENT: Gastech CT048

WEATHER: p. cldy

TEMPERATURE: ≈ 60°F | WIND: SSW @ 15 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1524/1545	0	20.9	– ran meter for 20 minutes to execute 3 casing volumes
7........SL-2	1556/1602	2	11.5	
2........SL-3	1636/1646	2	11.5	
3........SL-4	1710/1720	0	20.9	
5........SL-5	1616/1623	0	20.9	
4........M-1	1629/1633	1	17.5	
6........M-2	1606/1611	2	14.5	
8........M-3	1516/1519	2	14.5	
1........M-4	1649/1657	1	18.5	

5

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METHTANE MONITORING PLAN

for

Richland County Landfill # 376

and

Sidney Landfill # 102

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SEP 1 7 2010

DEPT. OF ENVIRO. QUALITY
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Sidney Landfill # 102

METHANE MONITORING METHODS

LANDFILL GAS MONITORING POINT LOCATIONS

Four permanent methane monitoring points were installed on October 18 and 19, 1994, at the landfill. In general, a methane probe was installed along each side of the facility property boundary. Enclosed photo shows the locations of the monitoring probes.

MONITORING POINT INSTALLATION METHODS

Boreholes for the methane monitoring points were drilled using a hollow-stem auger drill rig. The boreholes were drilled by advancing six-inch diameter augers to the assumed elevation of the base of buried waste in the vicinity of each methane monitoring point. Only point M-2 actually encountered waste materials. The depths of the other points were based on well drill logs and the observed landfill topography.

Drill cuttings from each borehole were visually examined at the surface and lithologic characteristics recorded on field logs along with other pertinent information. Drilling logs and methane probe schematics are provided in Appendix A. The monitoring devices are constructed of 25 to 30 feet of two-inch diameter flush-threaded PVC 0.02-inch slotted screen and five to eight feet of two-inch diameter PVC casing. The bore-hole around the screened interval was backfilled with washed pea-gravel (3/8-inch minus). The upper five feet of the bore-hole was back filled with a hydrated bentonite seal. The top of the PVC casing was fitted with a PVC cap and valved sampling port.

LANDFILL GAS MONITORING LOCATIONS AND FREQUENCY

The explosive potential of landfill gas will be measured in each of the four monitoring points, all on-site groundwater monitoring wells and at buildings at the facility. Landfill gas monitoring events will be performed on a quarterly basis.

MONITORING EQUIPMENT AND PROCEDURES

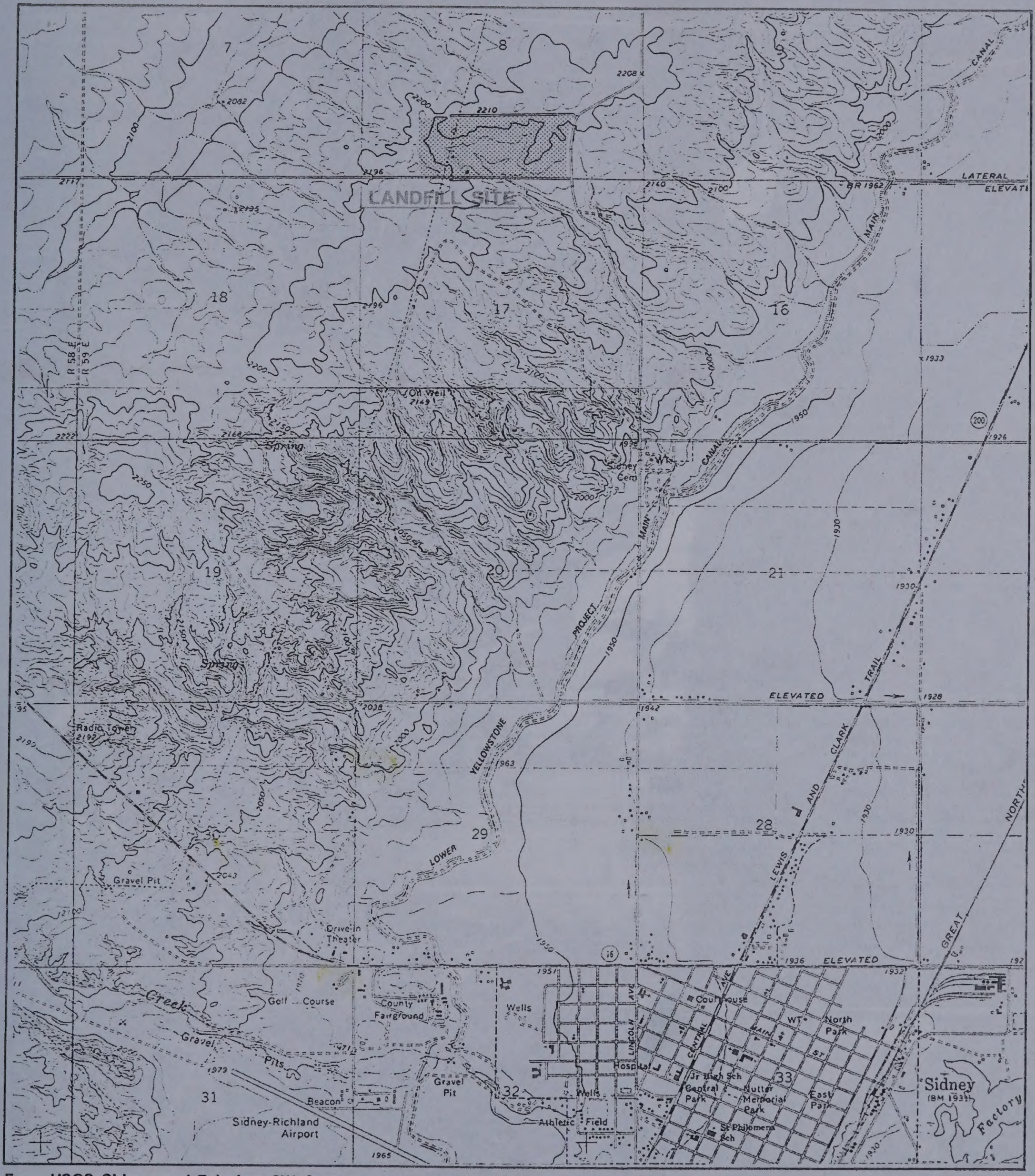
The explosive potential of landfill gas will be measured using a combustible gas indicator. The combustible gas indicator will be calibrated on-site in accordance with the manufacturer's recommendations using a methane gas standard. Once the combustible gas indicator is calibrated, the percent LEL and oxygen concentrations will be measured in each landfill gas monitoring point.

Samples will be collected at the valved sampling port by connecting the LEL meter to the port, opening the valve, and drawing gas through the instrument. Gas will be withdrawn until approximately one-casing volume has been evacuated or until LEL and O_2 measurements appear to have stabilized.

The percent LEL will be measured in on-site groundwater monitoring wells by inserting the instrument probe into the well casing immediately after the lid to the wells are removed.

DOCUMENTATION AND REPORTING

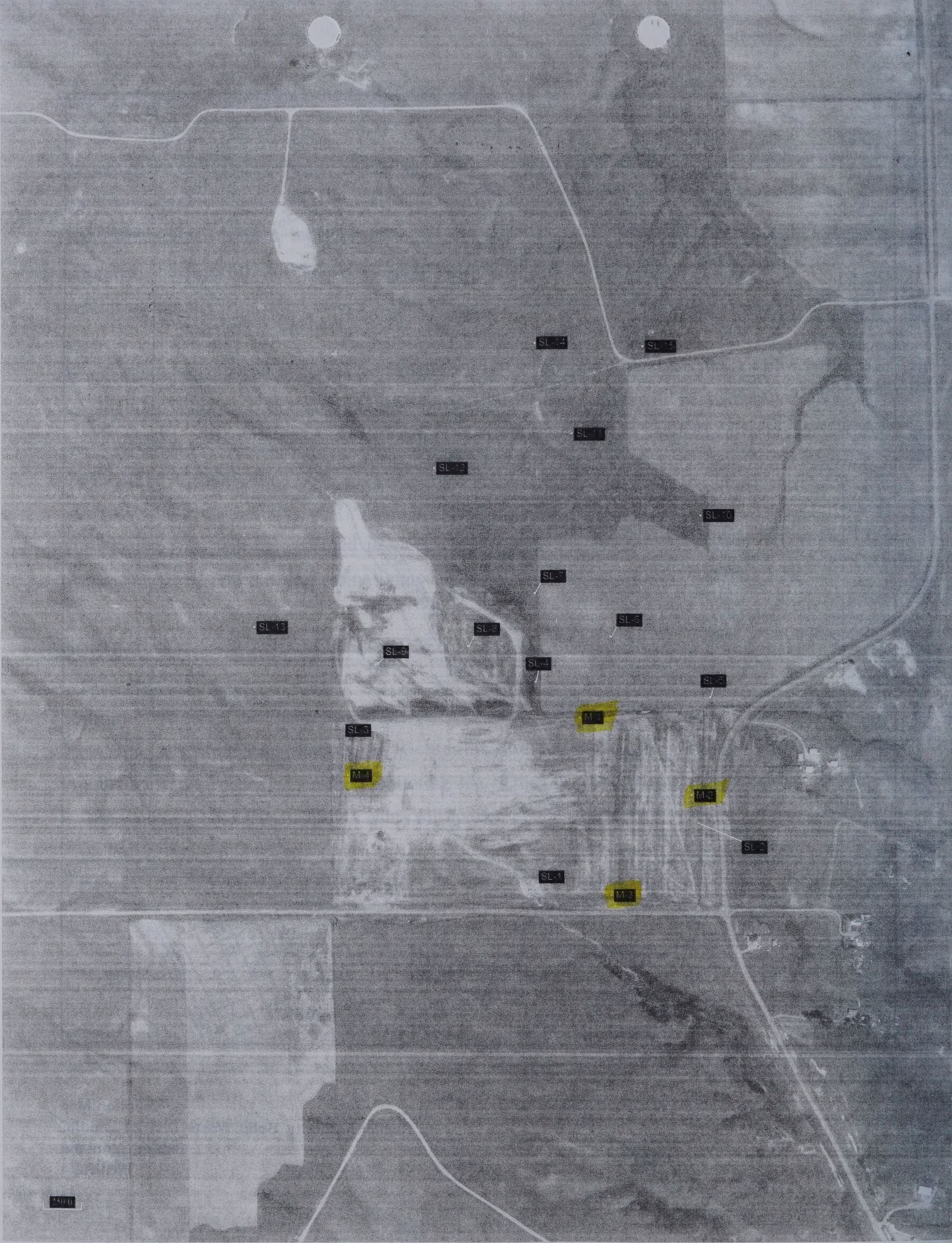
Instrument readings measured at each monitoring station will be recorded on a monitoring log. Appendix A includes an example of Richland County's landfill gas monitoring Weather conditions will be recorded on the monitoring log. If the LEL is exceeded in any monitoring device near the property boundary, Richland County will notify the Solidw Waste Program.

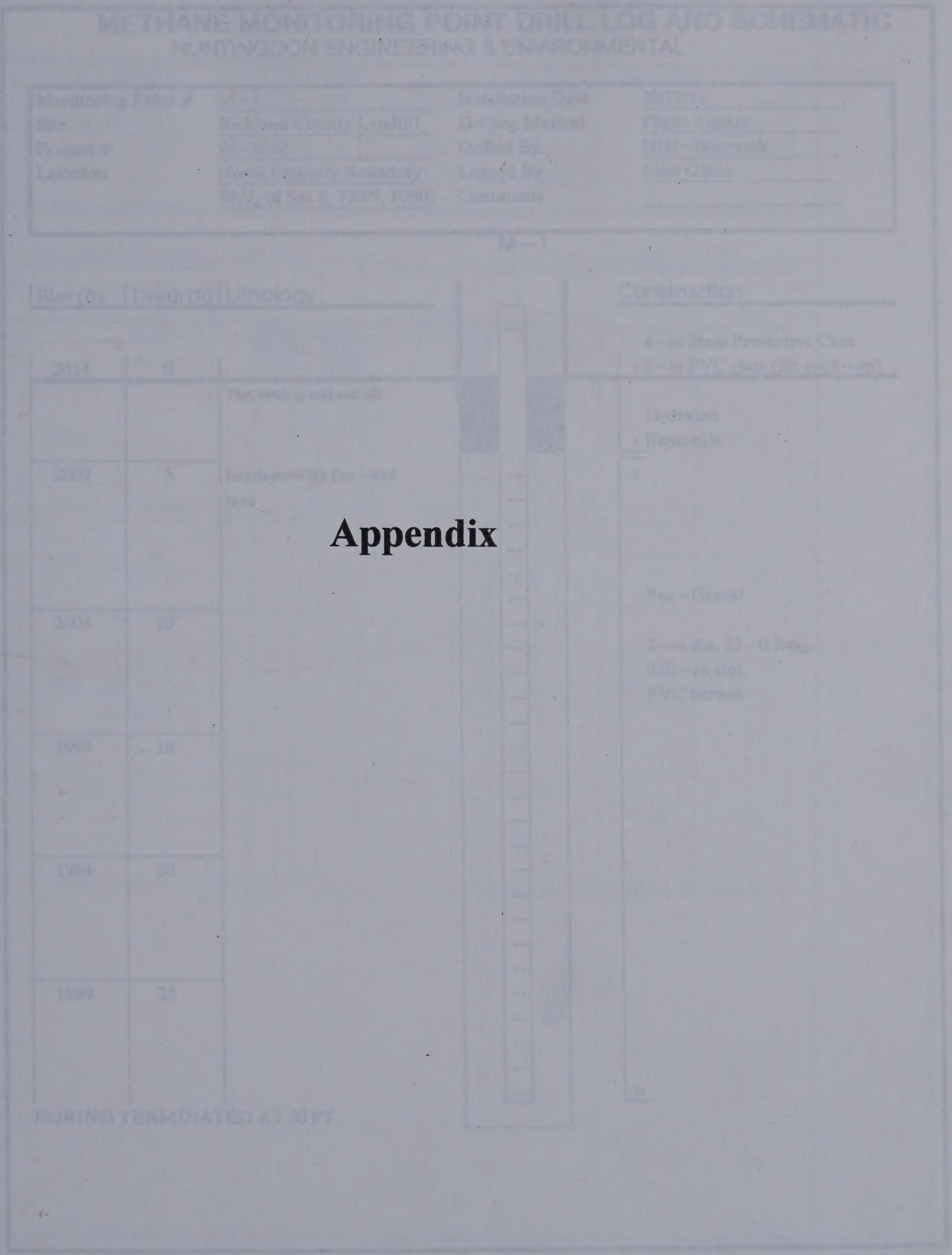


From USGS Sidney and Fairview SW Quads
Richland County, Montana

Location Map
Richland County Solid Waste District Landfill
Sidney, Montana
FIGURE 1

HE&E 90-3092


SL-14
SL-15
SL-11
SL-12
SL-10
SL-7
SL-13
SL-8
SL-6
SL-9
SL-4
SL-5
M-1
SL-3
M-4
M-2
SL-2
SL-1
M-3
250 ft



METHANE MONITORING POINT DRILL LOG AND SCHEMATIC
HUNTINGDON ENGINEERING & ENVIRONMENTAL

Monitoring Point #	M-1	Installation Date	
Site	Richland County Landfill	Drilling Method	Flight Auger
Project #		Drilled By	
Location	North Property Boundary	Logged By	
		Comments	

M-1

Elev (ft)	Depth (ft)	Lithology
2014	0	
2009	5	
2004	10	
1999	15	
1994	20	
1989	25	

Construction

Hydrated Bentonite

Pea Gravel

PVC Screen

BORING TERMINATED AT 30 FT.

Appendix

METHANE MONITORING POINT DRILL LOG AND SCHEMATIC

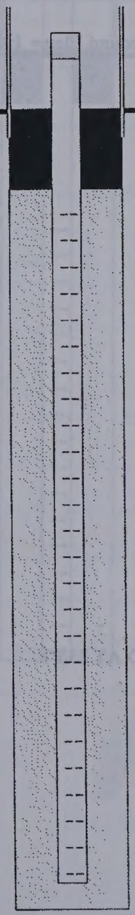
HUNTINGDON ENGINEERING & ENVIRONMENTAL

Monitoring Point #	M-1	Installation Date	10/19/94
Site	Richland County Landfill	Drilling Method	Flight Augers
Project #	90-3092	Drilled By	HIH-Bismarck
Location	North Property Boundary	Logged By	John Olson
	SE$^{1}/_{4}$ of Sec 8, T23N, R59E	Comments	

Elev (ft)	Depth (ft)	Lithology
2014	0	Tan, sand, gravel and silt
2009	5	Interlayered tan fine-med sand
2004	10	
1999	15	
1994	20	
1989	25	

BORING TERMINATED AT 30 FT.

M-1



Construction

4-in Steel Protective Case

0 2-in PVC riser (2ft stick-up)

Hydrated

4 Bentonite

4

Pea-Gravel

2-in dia, 25-ft long,
0.01-in slot,
PVC Screen

29

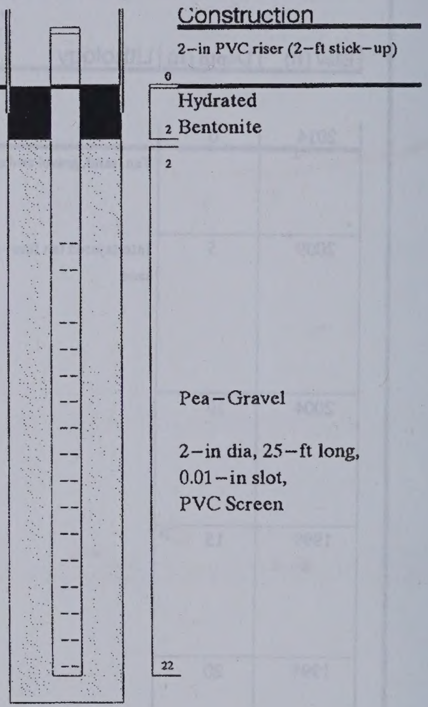
METHANE MONITORING POINT DRILL LOG AND SCHEMATIC

HUNTINGDON ENGINEERING & ENVIRONMENTAL

Monitoring Point #	M-2	Installation Date	10/20/94
Site	Richland County Landfill	Drilling Method	Flight Augers
Project #	90-3092	Drilled By	HIH-Bismarck
Location	East Property Boundary	Logged By	John Olson
	$SE^1/_4$ of Sec 8, T23N, R59E	Comments	

M-2

Elev (ft)	Depth (ft)	Lithology
1982	0	Ground Elev= 1982
1977	5	
1972	10	
1967	15	
1962	20	



BORING TERMINATED AT 23 FT.

METHANE MONITORING POINT DRILL LOG AND SCHEMATIC

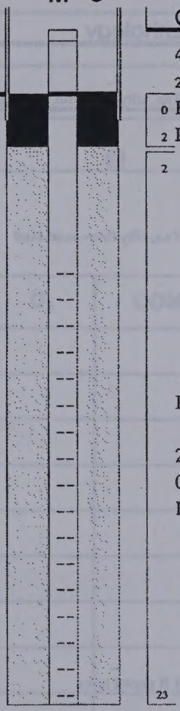
HUNTINGDON ENGINEERING & ENVIRONMENTAL

Monitoring Point #	M-3	Installation Date	10/19/94
Site	Richland County Landfill	Drilling Method	Flight Augers
Project #	90-3092	Drilled By	HIH-Bismarck
Location	South Property Boundary	Logged By	John Olson
	SE$^1/_4$ of Sec 8, T23N, R59E	Comments	

Elev (ft)	Depth (ft)	Lithology
1978	0	
		Brown, fine sandy silt, some gravel
1973	5	
		Tan, fine-med silty sand
1968	10	
		Brown, fine sandy silt
1963	15	
		1 ft gravel layer
1958	20	

BORING TERMINATED AT 23 FT.

M-3



Construction

4-in steel protective cover

2-in PVC riser (2-ft stick-up)

Hydrated
Bentonite

Pea-Gravel

2-in dia, 25-ft long,
0.01-in slot,
PVC Screen

METHANE MONITORING POINT DRILL LOG AND SCHEMATIC

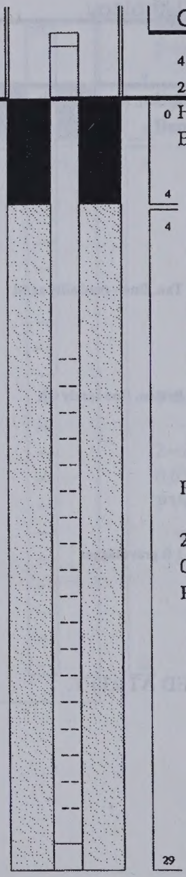
HUNTINGDON ENGINEERING & ENVIRONMENTAL

Monitoring Point #	M-4	Installation Date	10/19/94
Site	Richland County Landfill	Drilling Method	Flight Augers
Project #	90-3092	Drilled By	HIH-Bismarck
Location	West Property Boundary SW$^{1}/_{4}$ of Sec 8, T23N, R59E	Logged By	John Olson
		Comments	

M-4

Elev (ft)	Depth (ft)	Lithology
1996	0	Tan, silty fine sand, some garvel
1991	5	Tan, silty fine-med sand
1986	10	
1981	15	
1976	20	
		1 ft gravel layer
1971	25	

BORING TERMINATED AT 29 FT.



Construction

4-in steel protective cover

2-in PVC riser (2 ft stick-up)

Hydrated Bentonite

Pea-Gravel

2-in dia, 25-ft long,
0.01-in slot,
PVC Screen

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: | **DATA COLLECTED BY:**

CALIBRATED TO METHANE:

INSTRUMENT:

WEATHER:

TEMPERATURE: | **WIND:** @ mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........**SL-1**				
7........**SL-2**				
2........**SL-3**				
3........**SL-4**				
5........**SL-5**				
4.........**M-1**				
6.........**M-2**				
8.........**M-3**				
1.........**M-4**				

Missouri Department of Natural Resources

Sampling of Landfill Gas Monitoring Wells

Solid Waste Management Program Technical Bulletin 8/2005

Overview

This document was prepared by the Missouri Department of Natural Resources' Solid Waste Management Program (SWMP) to provide guidance regarding the quarterly sampling of gas monitoring wells as required by 10 CSR 80-3.010(14) and 10 CSR 80-4.010(14). This guidance applies to all landfills that monitor for methane migration by means of gas monitoring wells. Sampling results must be submitted at least quarterly to SWMP in an electronic format.

Sampling Equipment

Proper selection of sampling equipment is critical in obtaining true soil gas concentrations. Explosimeter-type instruments are not appropriate for measuring methane in gas monitoring wells, because the amount of oxygen which is present in the well may not be sufficient for the sample to "burn." These instruments will typically give false low readings when high concentrations of methane are present.

It is recommended that instruments used to sample gas monitoring wells have an automatic pump that has the ability to withdraw enough volume to bring a fresh sample of soil gas into the well. It is also beneficial that the instrument reads both oxygen and methane concentrations. Some instruments have the ability to read barometric pressure, which is also desirable.

Sampling Procedures

Step 1 - Make sure the instrument is properly calibrated. Prepare the instrument for sampling by allowing it to properly warm up as directed by the manufacturer.

Step 2 - Connect the instrument to the well head and begin collecting a sample.

Step 3 - Continue collecting the sample until the reading stabilizes. A stable reading is one that does not vary more than 0.5 percent by volume on the instrument's scale.

Step 4 - A proper reading should have 2 percent oxygen by volume or less. If levels of oxygen are higher, it may indicate that air is being drawn into the system giving a false reading of the true soil gas concentrations. Possible explanations for this problem are:

A. The gas monitoring well seal has failed;
B. Well head connections are leaking; or
C. A connection at the instrument is leaking.

When the problem is eliminated repeat Steps 1-3. If the problem cannot be corrected, record those values and make sure that the problem is well documented in the report sent to the department.

Step 5 - Record the stabilized reading including the oxygen concentration and barometric pressure, if available.

Missouri Department of Natural Resources

Sampling of Landfill Gas Monitoring Wells

Solid Waste Management Program technical bulletin 6/2006

Overview

This document was prepared by the Missouri Department of Natural Resources' Solid Waste Management Program (SWMP) to provide guidance regarding the quarterly sampling of gas monitoring wells as required by 10 CSR 80-3.010(14) and 10 CSR 80-4.010(14). This guidance applies to all landfills that monitor for methane migration by means of gas monitoring wells. Sampling results must be submitted at least quarterly to SWMP in an electronic format.

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Proper selection of sampling equipment is critical in obtaining true soil gas concentrations. Explosimeter-type instruments are not appropriate for measuring methane in gas monitoring wells, because the amount of oxygen which is present in the well may not be sufficient for the sample to "burn." These instruments will typically give false low readings when high concentrations of methane are present.

It is recommended that instruments used to sample gas monitoring wells have an automatic pump that has the ability to withdraw enough volume to bring a fresh sample of soil gas into the well. It is also beneficial that the instrument reads both oxygen and methane concentrations. Some instruments have the ability to read barometric pressure, which is also desirable.

Sampling Procedures

Step 1 - Make sure the instrument is properly calibrated. Prepare the instrument for sampling by allowing it to properly warm up as directed by the manufacturer.

Step 2 - Connect the instrument to the well head and begin collecting a sample.

Step 3 - Continue collecting the sample until the reading stabilizes. A stable reading is one that does not vary more than 0.5 percent by volume on the instrument's scale.

Step 4 - A proper reading should have 2 percent oxygen by volume or less. If levels of oxygen are higher, it may indicate that air is being drawn into the system giving a false reading of the true soil gas concentrations. Possible explanations for this problem are:

A. The gas monitoring well seal has failed;
B. Well head connectors are leaking; or
C. A connection at the instrument is leaking.

When the problem is eliminated repeat Steps 1-3. If the problem cannot be corrected, record those values and make sure that the problem is well documented in the report sent to the department.

Step 5 - Record the stabilized reading including the oxygen concentration and barometric pressure, if available.

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Obtaining true soil gas concentrations from gas monitoring wells is dependent upon using a consistent proven method. If you have problems using the sampling procedures described, you should contact the department as soon as possible.

Sampling Times

Sampling times are almost as important as the procedure used to collect the sample. Proper monitoring of the site should include sampling at those times when landfill gas is most likely to migrate. Scientific evidence indicates that weather and soil conditions influence when gas will migrate. For these reasons sampling should be considered when:

A. Barometric pressure is low and soils are saturated; or
B. When snow cover is just beginning to melt; or
C. The ground is frozen or ice covered.

Records

The Solid Waste Management Regulations require that reports on data collected from wells be submitted to SWMP at least quarterly. The SWMP recommends that gas monitoring be conducted during the months of February, May, August and November and that the results be submitted within 30 days of sampling. The data must be submitted in electronic form. The results submitted should contain:

1. The location of monitoring points.
2. Sample results obtained should include the date the sampling was performed and the barometric pressure, if available. Methane measurements may be given as a percentage of the total air volume or as a percentage of the Lower Explosive Limit (LEL). The following formula can be used to convert a percentage of LEL into a percentage methane by volume:
   % Methane (by volume) = LEL (%) ÷ 20
3. The amount of time a well is pumped before a stabilized methane reading is taken.
4. The percent volume of O_2 (if the instrument used is capable of measuring).

The form attached to the end of this bulletin may be used to record the information required by the department.

Conclusions

Missouri has stringent regulations governing landfill gas migration. The department prefers to address the issue of migrating gases before they present a threat to public safety or the environment.

Migrating gases detected above allowable limits at property boundaries do not necessarily mean that there is an immediate threat to public safety. It does mean that there is a potential problem that must be addressed. In order to address such a problem, a permit modification to install a gas collection system may be necessary.

References

Landtec Landfill Control Technologies, *Landfill Gas System Engineering Design: A Practical Approach*, course notes from Landfill Gas System Engineering Design Seminar, 1994.

Missouri Department of Natural Resources, Flood Grant Team, *Landfill Gas Monitoring Protocol*, available on the Solid Waste Management Program's Web site.

For more information call or write:

Missouri Department of Natural Resources
Solid Waste Management Program
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 751-5401 office
(573) 526-3902 fax
www.dnr.mo.gov/env/swmp Program Home Page

Missouri Department of Natural Resources

Procedures for Sampling Landfill Gas Inside Buildings

Solid Waste Management Program technical bulletin 6/2006

Overview

This document was prepared by the Missouri Department of Natural Resources' Solid Waste Management Program (SWMP) to provide guidance in how to properly sample for landfill gases in enclosed spaces.

Sampling Equipment

Proper selection of sampling equipment to be used for monitoring buildings is critical to make proper public safety assessments. Explosimeter-type instruments are appropriate for measuring methane in most monitoring in enclosed spaces. You should be aware that in an oxygen free environment some meters are not reliable and can give false readings that are lower than the actual gas concentrations.

It is recommended that detection instruments selected for monitoring buildings have a narrow sensitivity range, from 0-15 percent by volume for methane.

Sampling Procedures

Step 1 - Make sure the instrument has been properly calibrated to methane (Some instruments of this type are calibrated to hexane or propane, which have different combustible limits than methane). Prepare the instrument for sampling by allowing it to properly warm up as directed by the manufacturer.

Step 2 - Attach the hose to the instrument and begin sampling. Some instruments have metal wands that can be attached to the plastic hose to collect air samples. Wands can be made from copper tubing if not made available with the instrument.

Step 3 - To properly assess a building, samples should be collected from

A. Around the walls of the building and electrical sockets
B. Closets or other enclosed wall spaces
C. Cracks in cement floors
D. Ceiling areas
E. Crawl spaces and basements
F. Areas where below ground utilities enter the building
G. Any other confined area

Step 4 - If landfill gas is detected by the instrument in any concentration it should be recorded and reported to the department.

Sampling Times

Sampling times are almost as important as the procedure used to collect the sample. Proper monitoring of the site should include those times when landfill gas is most likely to migrate. For

Recycled Paper

these reasons monitoring should be considered when:

A. Barometric pressure is low and soils are saturated; or
B. When snow cover is just beginning to melt; or
C. The ground is frozen or ice covered.

Regulatory Requirements

Sanitary landfills in operation after April 9, 1994, and all demolition landfills that applied for a construction permit after July 30, 1997, are required to conduct the quarterly monitoring of all buildings on site as required by 10 CSR 80-3.010(14) and 10 CSR 80-4.010(14).

These landfills must implement a gas monitoring program to ensure that regulatory limits for methane are not exceeded - 1.25 percent (25 percent lower explosive limit) by volume in buildings on site. Results must be submitted at least quarterly to SWMP in an electronic format.

The Solid Waste Management Regulations require that monitoring reports be submitted to SWMP at least quarterly. The SWMP recommends that gas monitoring be conducted during the months of February, May, August and November and that the results be submitted within 30 days of sampling. The data must be submitted in electronic form. The results submitted should contain:

1. The location of monitoring points.
2. Sample results obtained should include the date the sampling was performed and the barometric pressure, if available. Methane measurements may be given as a percentage of the total air volume or as a percentage of the Lower Explosive Limit (LEL). The following formula can be used to convert a percentage of LEL into a percentage methane by volume:
   % Methane (by volume) = LEL (%) ÷ 20

The form attached to the end of this bulletin may be used to record the information required by the department.

Corrective Action / Emergency Response

If methane gas levels exceed regulatory limits or are an obvious public safety threat, the landfill owner/operator must:

1. Immediately take all necessary steps to ensure protection of public health and safety. For accumulation of gas in buildings, either on-site or off-site, the operator must take appropriate action to mitigate the effects of the gas accumulation in those structures until a permanent remediation is completed.
2. Comply with the Solid Waste Management law and regulations as required by 10 CSR 80-3.010(14) and 10 CSR 80-4.010(14).

Conclusions

Missouri has stringent regulations governing landfill gas migration. Landfill gases that have the ability to migrate in buildings present a threat to public safety. It is the responsibility of the landfill owner/operator to take any and all steps to protect the public from migrating landfill gases both on- and off-site.

References

Farquhar, Grahame, *Monitoring and Controlling Methane Gas Migration*, course notes presented at April 1993 Sanitary Landfill Design and Management training, offered by the University of Wisconsin, Madison, College of Engineering.

SCS Engineers, Inc., April 1989, *Procedural Guidance Manual For Sanitary Landfills, Volume II: Landfill Gas Monitoring and Control Systems*, prepared for the California Waste Management Board.

United States Environmental Protection Agency, November 1993, *Solid Waste Disposal Facility Criteria*, Technical Manual, EPA 530-R-93-017.

For more information call or write:

Missouri Department of Natural Resources
Solid Waste Management Program
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 751-5401 office
(573) 526-3902 fax
www.dnr.mo.gov/env/swmp Program Home Page

INSTRUCTION MANUAL
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8445 Central Avenue, Newark, CA 94560
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Phone (510) 745-8700 FAX (510) 794-6201

WARNING

EXPLOSIVE GAS MIXTURES CAN MAIM, DISFIGURE, AND KILL. TOXIC VAPORS CAN CAUSE IMPAIRMENT OF HEALTH. IT IS ESSENTIAL THAT USERS OF THIS INSTRUMENT READ, UNDERSTAND, AND FOLLOW THE INSTRUCTIONS FOR OPERATION AND MAINTENANCE, AND THE PRECAUTIONS CONTAINED IN THIS MANUAL TO INSURE THAT THE INSTRUMENT IS USED IN A PROPER AND SAFE MANNER.

THE HYDROCARBON SENSOR USED IN THIS INSTRUMENT REQUIRES OXYGEN TO OPERATE. THIS INSTRUMENT IS INTENDED FOR TANK TESTING, INTERSTITIAL SPACE TESTING, SOIL VAPOR ANALYSIS AND OTHER APPLICATIONS OF HYDROCARBON GAS OR VAPOR DETECTION IN AIR. USE OF THE INSTRUMENT IN OXYGEN ENRICHED MIXTURES IS BEYOND THE NORMAL SCOPE OF ITS INTENDED APPLICATION.

THIS DEVICE IS SAFE FOR TESTING MOST MIXTURES OF COMBUSTIBLE GAS IN AIR. IT IS CERTIFIED BY THE MANUFACTURER TO BE INTRINSICALLY SAFE IN CLASS I, DIVISION 1, GROUP C AND D ENVIRONMENTS.

VERSIONS OF THIS INSTRUMENT WHICH HAVE "NOT FOR METHANE USE" PRINTED ON THE METER DIAL DO NOT RESPOND TO METHANE OR NATURAL GAS. THESE INSTRUMENTS MUST NOT BE USED FOR DETECTION OF METHANE OR NATURAL GAS.

EXPLOSIVE MIXTURES OF ACETYLENE OR HYDROGEN IN AIR (GROUP A AND B ATMOSPHERES) ARE UNSUITABLE ENVIRONMENTS FOR PERSONNEL AND FOR ELECTRICALLY OPERATED INSTRUMENTS. THIS INSTRUMENT WAS NOT DESIGNED FOR USE UNDER SUCH CONDITIONS AND IS NOT CERTIFIED INTRINSICALLY SAFE FOR GROUP A AND B ATMOSPHERES.

DO NOT SAMPLE OR TEST OXYGEN-ACETYLENE MIXTURES AS FOUND IN OXY-ACETYLENE WELDING AND CUTTING EQUIPMENT. DO NOT USE FOR DETECTION OF TOXIC GASES OTHER THAN ORGANIC VAPORS IN THE TOXIC RANGE.

V. CALIBRATION AND ADJUSTMENT

A. Calibration

Calibration of the Tank-Techtor should be checked periodically to assure proper response. Frequency of calibration depends on frequency and type of use the instrument receives. There is no set frequency of calibration that is correct for all users; it is recommended to check the unit fairly frequently at first (perhaps weekly) until a reasonable calibration need pattern is developed for your usage. For example, if the meter is used only once a month, then even monthly checks are not likely to be needed. The other extreme would be an instrument that is used constantly every day, and where the data accuracy is critical. Such frequent use in a critical application might demand the calibration be checked daily. Hexane is the recommended calibration gas for the hydrocarbon ranges, since it provides a conservative response representative of total petroleum hydrocarbon vapors present. Normal fresh air is used to calibrate the oxygen range.

If the sensor is damaged or replaced, the unit should be recalibrated.

To calibrate on hydrocarbons:

1. Turn instrument on and allow at least a five minute warm up period. Verify battery is charged.
2. Open instrument case by loosening captive screw at front. Lift upper half of case slightly and move it 1/4" forward to disengage rear clamp, then separate the two halves. Locate the potentiometer on the front corner of the circuit board marked PPM SPN. This is the span adjustment.
3. Attach standard 5' hose. probe, and hydrophobic filter to the instrument .
4. Turn to PPM range and zero the meter using the external ZERO adjustment knob. If zero cannot be adjusted with the external adjustment, use the internal coarse zero adjustment. (See Section V. B.) Switch instrument to LEL range.
5. Attach upper end of flowmeter to the probe with the short piece of tubing included in the calibration kit. Note flowmeter reading.
6. Attach valve to cylinder and flowmeter to valve with the remaining tubing. Open valve just enough so that flow is the same as observed in step 5.
7. Watch meter and note highest reading. The desired reading is the LEL value marked on the calibration gas cylinder. (Selector switch should be in the appropriate position to read the concentration marked on the cylinder.) If the reading does not match the cylinder value, turn PPM SPN adjustment to give desired reading.

   Calibration kits and replacement cylinders are available from GasTech Environmental Monitors. The recommended cylinder is part number 81-0007, which is a cylinder of nominal 40% LEL hexane.

   Calibrate the unit with a concentration in the LEL range, to minimize any calibration error that may occur due to humidity effects caused by the dry air which comes out of a compressed gas cylinder.
8. If zero cannot be adjusted, or if reading cannot be set high enough, replace detector.

B. Zero Adjustment

This instrument contains both an external fine zero adjustment and an internal coarse zero adjustment. Generally the external adjustment is all that is needed, but when replacing sensor or as sensor ages, it may become necessary to adjust the internal coarse zero. This potentiometer is accessible with the instrument opened and is located on the front of the circuit board labeled PPM CRS ZER. Adjust as follows:

1. Turn instrument on and allow at least a five minute warm-up period.
2. Turn the external zero adjustment to the center of its adjustment range. This is a 10 turn adjustment, so count 5 turns from one end of its range. (First turn it fully clockwise and then back it off 5 full turns counterclockwise.)
3. Turn selector switch to PPM range.
4. Turn internal PPM CRS ZER adjustment to bring the meter to a zero reading. Turning the adjustment clockwise increases the reading.
5. If unable to adjust meter to zero with the PPM CRS ZER adjustment, sensor wires may be loose or sensor may need replacement.
6. No ZERO adjustment is required for the oxygen range.

C. Oxygen Calibration

The oxygen calibration is generally set whenever the instrument is turned on. To calibrate, turn the instrument on (in fresh air) and place the selector switch to the OXY position. Turn the OXY CAL knob (on control panel) so that the meter reading is 20.9% (the line marked OXY CAL) on the upper meter scale.

D. Alarm Level Verification and Adjustment

The Tank-Techtor contains individually adjustable gas or vapor alarms for each of the four ranges. The PPM and LEL alarms are inactive for the first 30 seconds following turn on. See the Specifications at the front of this manual for alarm setting for this instrument.

1. Alarm Verification, PPM and LEL ranges

Alarm levels can be checked with the ALM ADJ switch. It is located in the center of the circuit board, accessible when the instrument is open. To check PPM and LEL alarm levels:

a) Separate top and bottom halves of instrument housing by loosening the large knurled screw near the front of the housing.

b) Turn instrument on and allow to warm-up.

c) Move selector switch to PPM range, and then press and hold the ALM ADJ switch.

d) Observe meter reading. Meter reading will read the level at which the alarm point is set.

e) Turn the selector switch to PPM x 10, and LEL, then repeat the above (press ALM ADJ switch and observe meter reading) for these ranges.

2. Alarm Verification, Oxygen ranges

To verify oxygen alarm level, turn selector switch to OXY range and turn OXY CAL adjustment slowly while observing meter to see where alarm activates.

3. Alarm Adjustment

LEL and PPM alarm levels are adjustable with the ALM ADJ switch and the ALM potentiometers. Alarm levels are factory-set at the levels shown in Specifications, but can be field adjusted as follows:

a) Follow steps a through d of the preceding Alarm Verification section.

b) While observing meter reading of alarm set point for PPM range, turn the adjustment potentiometer marked PPM x 1 located directly behind the ALM ADJ switch. Turning this adjustment will move the meter dial to a new alarm setting. Stop turning when meter displays the desired alarm level setting.

c) Repeat step b for PPM x 10, and LEL ranges; move the selector switch to those ranges and turn their respective alarm adjustment potentiometers to display the desired settings.

Note

The potentiometer marked PPM x 100 sets the LEL alarm.

d) Oxygen alarm adjusts as follows:

1. Turn selector switch to OXY position and use external OXY CAL adjustment to set meter to the desired alarm level.

2. Turn internal OXY alarm adjustment slowly until alarm sounds.

3. Recheck alarm level by turning OXY CAL knob. Repeat steps 1 and 2 above if necessary until alarm is at desired level (usually 19.5%).

4. Alarm Cutout

An alarm cutout switch is provided in the event the instrument will be used as a survey tool only and no gas level alarms are desired. The alarm cutout switch is located directly behind the three alarm adjustment potentiometers. This is a small four pole switch which utilizes only poles 1 and 2. The pulsing audible hydrocarbon vapor alarm is active when the small lever in position 1 is pushed near the "1" imprinted onto the circuit card. The vapor alarms will be disabled if the lever is pushed away from the "1" to the far side of the switch labeled "ALM OFF", towards the instrument control panel. Pole "2" cuts outs the oxygen alarm, and is set in the ALM OFF position to disable the oxygen alarm as shipped from the factory. To enable the oxygen alarm, the lower position 2 should be pushed towards the "2" imprinted on the circuit card.

WARNING

DO NOT LEAVE THE SWITCHES IN THE DISABLED POSTIONS IF AUDIBLE VAPOR OR OXYGEN ALARMS ARE DESIRED.

VI. MAINTENANCE

A. Batteries

1. To check battery voltage, turn the selector switch to BATT. Recharge before voltage reads minimum. To charge:

   a) Turn selector switch to BATT position and note meter reading.

   b) Plug charger into power source and then into the socket on the rear of the Tank-Techtor. The meter reading should rise slightly as soon as charger is connected. If it does not, verify that AC outlet is active. If outlet is active but meter does not rise when charger is attached, charger may be defective.

   c) If meter reading does rise, turn instrument off and leave on charge for 16 hours.

   Note

   Do not attempt to charge while instrument is turned on.

   Charger provides a dual rate, timed charge. The amber LED lights when the instrument is charging. After 16 hours the green LED on the charger will light, indicating that charging cycle is complete.

2. If sufficient voltage cannot be obtained after charging, open instrument and :

   a) Check voltage output with a voltmeter, between red and black wires (unplug connector to gain access to pins). Voltage should be about 8.5 volts.

   b) If battery voltage is too low, and cannot be brought up by overnight charging, battery probably needs replacement. To remove, take out the two screws holding it to bottom of case, and unplug connections at front and rear of battery pack.

   c) If battery has no output and is the fused version, replace fuse. Remove existing fuse by unscrewing the red fuse holder on the battery with a screwdriver. Replace only with 1 AMP 3AG type fuse.

B. Combustible Detector

1. Sensor assembly may require replacement if:

   a) Meter cannot be set to zero within range of internal coarse zero potentiometer.

   b) Meter cannot be set to desired level within range of SPAN adjust.

2. To Replace Detector:

   a) Open instrument case.

   b) Disconnect the red, green and white wires at terminals on main circuit board, noting color coding.

   c) Unscrew knurled retaining cap at reaction chamber.

d) Pull out original detector and install new one. Be sure that o-ring is in place, under flange of detector.

e) Connect wires to terminals, turn power on, zero and calibrate new sensor after warm up.

C. Oxygen sensor replacement

Replace the oxygen sensor when it can not be calibrated. To replace:

a. Disconnect the sensor leads at the connector.

b. Remove the screw that holds the sensor chamber in the bottom of the case.

c. Lift out sensor chamber and disconnect tubing from fittings by pushing the red flange into the fitting while pulling tube with other hand.

d. Replace with new sensor chamber (includes oxygen sensor and fittings). Be sure tubes are pressed fully into the fitting.

D. Meter

If meter is damaged it can be removed for repair or replacement as follows:

1. With upper half of instrument removed from lower half and inverted, remove three screws holding circuit board to case.
2. Gently lift circuit board with meter out of case. Circuit board will remain attached to case by three ribbon cables and by two wires going to float switch socket.
3. Remove two nuts holding meter to circuit board, then remove meter.
4. Re-install new meter in reverse order of the above steps.

E. Circuit Board

Main circuit board can be removed by following the above steps 1-3 for meter removal and adding these additional steps:

1. Remove three connecting ribbon cables by unplugging from sockets on main board. Prying loose from sockets carefully with a small screwdriver can aid this step.
2. Remove tubing to bottom case at the quick disconnect fittings located in the bottom case. To remove, push the red flange into the fitting while pulling tube with other hand. Take note of which tube goes where.
3. Return defective circuit board to the factory for repair, or purchase new circuit card for replacement.

Note

When returning to factory for repair, please be sure problem has been narrowed down to the main circuit board, otherwise it is better to send in the complete top case assembly or the entire instrument for checkout.

F. Filters

The filter should be maintained in good condition because they protect other internal components from damage and unnecessary maintenance.

Internal hydrophobic filter is located in the lower portion of the instrument and is accessible when the instrument is open. The purpose of this filter is to provide one last filtering stage for both water and dust before the sample flow passes on to the pump, sensors, and flow switch.

This filter can be replaced by disconnecting it from the yellow tubing sections and re-installing a new one. When installing new one, be sure the side of the filter marked "INLET" is facing towards the front of the unit and is connected to the hose leading to the inlet fitting.

The probe (at end of hose) contains a cotton ball dust filter visible through the clear probe body. The cotton ball should be replaced when dirty. A package of 24 cotton balls (Part No. 33-1031) is available from GEM, or any normal sized cotton balls may be used.

CAUTION

Gasoline or other hydrocarbon based liquids can cause damage to hose, filters, and internal components.

G. Pump

Pump used is a DC motor driven diaphragm type. It should have long life, (several years in normal operation) but it may lose efficiency if dirt or liquid is drawn in and collects under the valves. Verify proper pump operation periodically by taking a sample and observing time for initial gas response to occur. This should be within 5 seconds for a 5' hose. It may also be checked with the flowmeter provided as a calibration accessory. Normal pump flow is generally about 2.0 SCFH.

If pump needs servicing, remove it by unscrewing two small screws holding it in the bottom of the case. Pump can be returned for repair on an exchange basis or it can be disassembled and cleaned. Replacement pump head assemblies are also available.

VII. PRECAUTIONS AND NOTES ON OPERATION

A. Heated Samples

When sampling spaces that are warmer than the instrument (hot tanks), condensation can occur as the sample passes through the cooler sample line. Water vapor condensed in this way can block the flame arrestor and interfere with pump operation, unless a hydrophobic filter is used.

If heated hydrocarbon vapors of the heavier hydrocarbons (flash point 90 degrees Fahrenheit or above) are present, they may also condense in the sample line and fail to reach the filament. Thus an erroneous low reading may be obtained.

B. Filament Poisoning

Certain substances have the property of desensitizing the catalytic surface of the platinum filament. These substances are termed "catalyst poisons" and can result in reduced sensitivity or in failure to give a reading on samples containing combustible gas. The most commonly encountered catalyst poisons are the silicone vapors, and samples containing such vapors even in small proportions should be avoided.

Occasional calibration checks on known gas samples are desirable, especially if the possibility exists of exposure to silicones.

C. Other Gases and Vapors

The instrument is designed and calibrated specifically for hexane unless specified differently in the original order. It can be recalibrated and used on other gases and vapors, by proper use of the calibration control while sampling a known gas-air mixture.

WARNING

THE TANK-TECHTOR CANNOT BE USED FOR METHANE OR NATURAL GAS DETECTION UNLESS SPECIFICALLY PROVIDED FOR THAT USE BY THE FACTORY. VERSIONS WHICH SAY "NOT FOR METHANE USE" ON THE METER DIAL WILL NOT DETECT METHANE AND A FEW OTHER GASES. THESE VERSIONS ARE INTENDED FOR PETROLEUM FUEL VAPOR USE ONLY.

D. Oxygen Deficient Mixtures

Samples which do not have the normal proportion of oxygen may tend to read low because there is not enough oxygen to react with all combustible gas present in the sample. As a general rule, samples containing 10% oxygen or more have enough oxygen to give a full reading on any combustible gas sample up to 10,000 ppm (100% LEL). For lower concentrations of flammable gas, lower levels of oxygen are required for full response.

E. Arson Investigation

Flammable liquids (gasoline, kerosene or paint solvent) are often used in starting intentional fires. Investigation of such fires can be greatly aided if the presence and location of such liquids can be determined at the site, as soon as possible after the fire is extinguished. The Tank-Techtor can be of great assistance in making this determination.

In testing for residual flammable liquids, look for places where the liquid could have been trapped and where it might remain even after the fire. Naturally, if the entire structure has been consumed there is little likelihood of any liquid or vapors remaining. Conversely, the earlier the fire has been extinguished, the greater the chance of finding significant amounts of liquid remaining.

To check for residual volatile liquids, set the instrument up in accordance with the preceding instructions and allow it to run for at least 5 minutes. Then turn to PPM range and balance zero carefully immediately before taking the test.

Hold end of probe at point where vapors may be present, and watch meter carefully for any sign of a deflection. Check at joints or cracks between boards, for example, under baseboards or plates in contact with flooring. Pry boards up to form a small crack where hose or probe may be inserted. Check also under unburned portions of rug or upholstery, or any point where liquid might logically have soaked in and remained.

If a positive indication is obtained, trace it to the point of maximum reading. This is the point where samples should be taken for further lab analysis.

VIII. PARTS LIST

Stock No.	Description
07-6010	O-Ring Seal, hose (probe end)
07-6115	O-Ring Seal, combustible detector
30-0018	Pump, Gilian
30-0018E	Pump, Gilian, exchange
30-0021	Repair kit for Gilian Pump
33-0153	Filter, internal, hydrophobic
33-1031	Filter for probe, pkg of 24 cotton balls
47-1501	12 VDC Adapter/Charger
49-1571	Battery Pack, encapsulated with Ni-Cad batteries
49-2037	115 VAC Continuous Operation Adapter
49-2133	Battery Charger, 115 volts, dual-rate time controlled
49-2034	Battery Charger, 230 volts, for Ni-Cad batteries (single rate)
49-2134	Battery Charger, 230 volts, dual rate time controlled (user to provide AC plug)
50-5801E-A7	Meter, with dial, Tank-Techtor (No CH_4)
61-0120TT	Detector Ass'y Catalytic, selected for Tank-Techtor
65-0609E-01	Oxygen cell replacement, with fittings
80-0150	10" Probe
80-0224	Filter, external, hydrophobic w/ quick-disconnect ftgs.
80-0800E-5	Hose, Polyurethane, inlet 5'
80-0800E-10	Hose, Polyurethane, inlet 10'
80-0800E-15	Hose, Polyurethane, inlet 15'
80-0800E-20	Hose, Polyurethane, inlet 20'
80-0801E-12	Float switch probe assembly for Tank-Techtor, 12'
81-0007	Spare cylinder of 40% LEL hexane
81-0221E-2	Calibration Kit for Tank-Techtor, w/2 cyl. of 40% LEL hexane

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Nov 28, 2010 | DATA COLLECTED BY: JG

CALIBRATED TO METHANE: 45 % CH4 Adjusted to 50 % CH4

INSTRUMENT: Gastech CT 048

WEATHER: overcast

TEMPERATURE: 29°F | WIND: NW @ 15 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........**SL-1**	1420/1435	34	<10	
7........**SL-2**	1434/1350	0	20.9	
2........**SL-3**	1251/1301	0	20.9	
3........**SL-4**	1116/1127	0	20.9	
5........**SL-5**	1218/1225	0	20.9	
4.........**M-1**	1300/1306	1	19.5	
6.........**M-2**	1330/1345	0	20.9	
8.........**M-3**	1355/1410	2	17.0	
1.........**M-4**	1130/1149	0	20.9	

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DEPT. OF ENVIRO. QUALITY
WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: July 15, 2010 **DATA COLLECTED BY:** KQ

CALIBRATED TO METHANE: 50%. city reads 50%

INSTRUMENT: Gastech CT 048

WEATHER: clear

TEMPERATURE: ≈72°F **WIND:** WNW @ 20 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9……..SL-1	1327	69	<10	
7……..SL-2	1336	2	11.0	
2……..SL-3	1505	2	17.5	
3……..SL-4	1430	0	20.9	
5……..SL-5	1401	0	20.9	
4………M-1	1427	1	16.5	
6………M-2	1348	2	12.0	
8………M-3	1320	2	16.0	
1………M-4	1526	2	18.0	

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WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: June 12, 2010 | DATA COLLECTED BY: 10

CALIBRATED TO METHANE: 50% City reads 52%

INSTRUMENT: Gastech CT04B

WEATHER: overcast

TEMPERATURE: 65°F | WIND: NW @ 12 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1500	<10	4	
7........SL-2	1325	11.5	2	
2........SL-3	1440	20.0	1	
3........SL-4	1400	20.9	0	
5........SL-5	1343	20.9	0	
4.........M-1	1435	2	17.0	
6.........M-2	1320	2	16.0	
8.........M-3	1512	2	14.5	
1.........M-4	1452	2	18.5	

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JUN 21 2010

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Jan 14 2010 | DATA COLLECTED BY: KO

CALIBRATED TO METHANE: ~~Gas~~ 50% city reads 44%

INSTRUMENT: Gastech CT 048

WEATHER: clouding over

TEMPERATURE: 83° F | WIND: NW @ 10 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9.........SL-1	1226	46	<10	
7.........SL-2	1159/1209	2	<10	
2.........SL-3	1027/1137	2	12.0	
3.........SL-4	1111/1121	0	20.9	
5.........SL-5	1145/1155	0	20.9	
4.........M-1	1257/1312	2	18.5	
6.........M-2	1317/1332	2	15.5	
8.........M-3	1337/1352	2	15.5	
1.........M-4	1233/1252	1	19.0	

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WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Nov 19, 2009 **DATA COLLECTED BY:** KL

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: Gastech GT-048

WEATHER: clear

TEMPERATURE: 55° **WIND:** SW @ 5 **mph**

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1445	42	—	
7........SL-2	1243/1304	4	<10	
2........SL-3	1357/1430	2	<10	
3........SL-4	1323/1347	0	20.9	
5........SL-5	1250/1314	6	20.9	
4.........M-1	1318/1340	2	17.5	
6.........M-2	1245/1300	1	14.5	
8.........M-3	1225/1240	1	13.5	
1.........M-4	1352/1420	2	18.5	

RJ

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FEB 01 2010

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WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: July 22, 2009 | DATA COLLECTED BY: K

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: Gastech CT448

WEATHER: clear

TEMPERATURE: ≥ 90° | WIND: NW @ 25 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1455	55	—	
7........SL-2	1322/1340	0	12.0	
2........SL-3	1400/1418	0	20.9	
3........SL-4	1356/1414	0	20.9	
5........SL-5	1330/1350	0	20.9	
4.........M-1	1304/1315	0	14.5	
6.........M-2	1320/1335	0	13.5	
8.........M-3	1354/1409	0	17.5	
1.........M-4	1422/1442	0	19.0	

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OCT 21 2009
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

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APR 29 2009

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WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Apr. 26, 2009 | DATA COLLECTED BY: JO

CALIBRATED TO METHANE: 50% CH_4 reads 50%

INSTRUMENT: Gastech CT 048

WEATHER: overcast

TEMPERATURE: ≈ 49°F | WIND: NW @ 7 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1324/1335	22	11.0	
7........SL-2	1450/1505	0	20.9	
2........SL-3	1352/1402	2	<10	
3........SL-4	1422/1432	0	20.9	
5........SL-5	1414/1443	0	20.9	
4.........M-1	1407/1427	1	16.5	
6.........M-2	1445/1500	0	16.0	
8.........M-3	1315/1330	2	19.0	
1.........M-4	1338/1358	1	18.5	

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: March 24, 2009 | DATA COLLECTED BY: KD

CALIBRATED TO METHANE: 50% [illegible] needs 50%

INSTRUMENT: Gastech CT048

WEATHER: overcast

TEMPERATURE: ≈ 24°F | WIND: NW @ 25 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	0930/0940	24	<10	
7........SL-2	1008/1018	1	10	
2........SL-3	1147/1157	2	10	
3........SL-4	1133/1143	0	20.9	
5........SL-5	1047/1057	0	20.9	
4.........M-1	1107/1127	0	17.5	
6.........M-2	1022/1042	1	15.0	
8.........M-3	0950/1005	0	17.0	
1.........M-4	1201/1221	1	19.0	

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Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

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FEB 13 2009

DEPT. OF ENVIRO. QUALITY
WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

DISTRICT SANITARIAN
Richland and McCone County Health Departments

1201 West Holy Suite 5 Sidney, MT 59270 Phone: 406-433-6876

MEMORANDUM

TO: Martin Van Oort

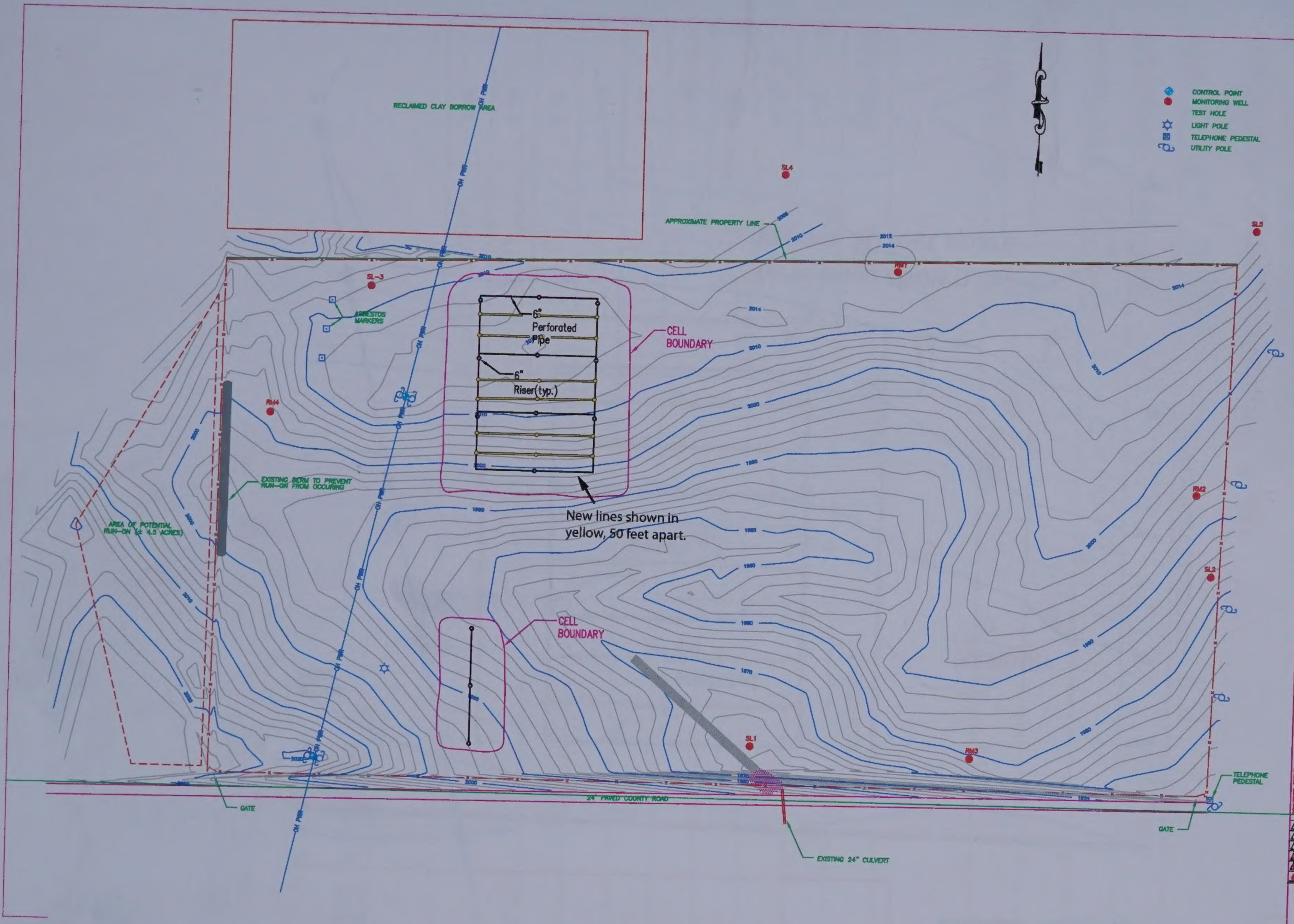
FROM: Kelly Logan, R.S.

DATE: February 11, 2009

SUBJECT: sampling plan and methane system

The sampling plan for the Sidney Landfill is enclosed. The sampling plan for the Richland County Landfill will be basically the same with only minor changes and will be mailed to you after receiving your comments on the SAP submitted. Trying to keep things simple for me and make the necessary changes only once. To address the methane issue at the Sidney landfill we are considering adding six additional trenches fifty feet apart. The trenches would be constructed as previously approved (shown on the enclosed diagram). This assumes that each trench has 50 feet of influence. We are working with a consultant to determine if there are other cost effective options available.

FYI



New lines shown in yellow, 50 feet apart.

RICHLAND COUNTY
SOLID WASTE DISTRICT
Sidney, Montana

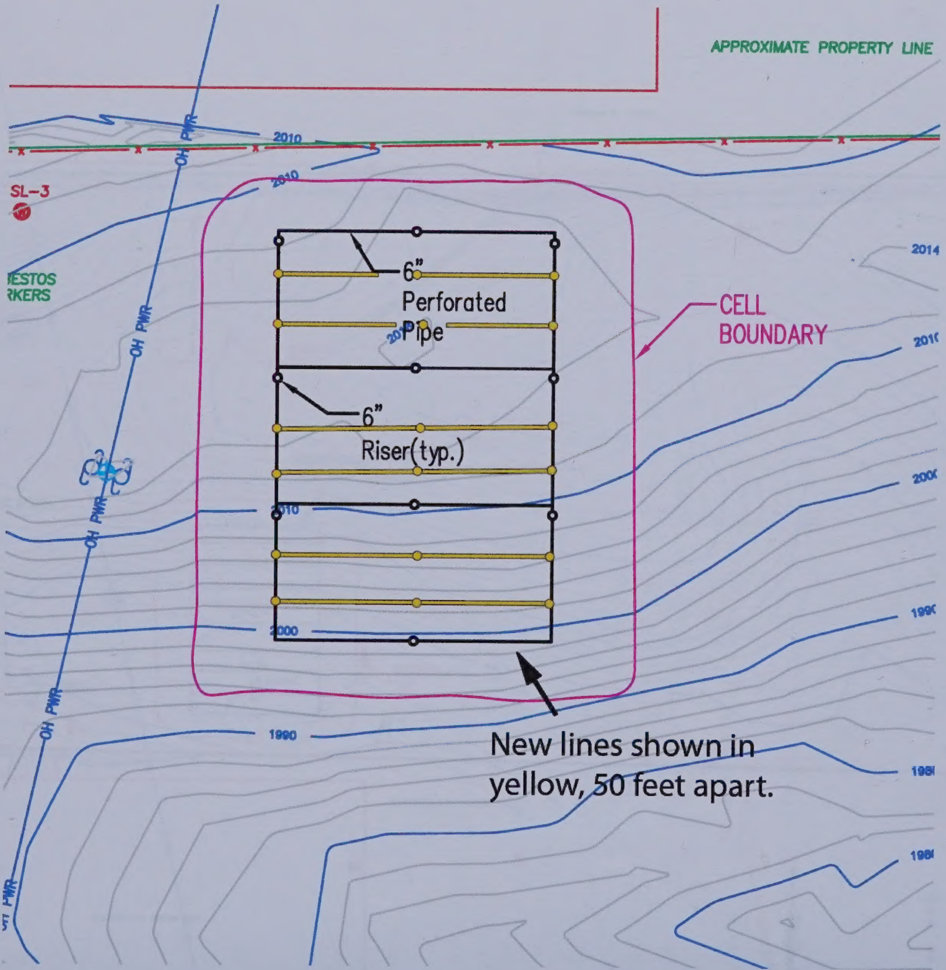
JOB/ACAD NUMBER: ——————
DRAWN BY: Dunnechen & Assoc.
EDITED BY: R. Huotari
CHECKED BY:
DATE: FEB.2001
PLOT SCALE: NTS

SHEET TITLE
SITEPLAN

PROJECT TITLE
CLOSED LANDFILL #102
Gas Collection System

#	DATE	REVISION
△		
△		
△		
△	[illegible]	R.Huotari
△	[illegible]	BL

SHEET NO.
1
of 1



New lines shown in yellow, 50 feet apart.

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: 12/19/2008 DATA COLLECTED BY: KO

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: Gastech CT 045

WEATHER: mostly clear,

TEMPERATURE: -8°F WIND: NW @ 12 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9……..SL-1	0930/0940	34	15	
7……..SL-2	1008/1018	1	10	
2……..SL-3	1147/1157	2	<10	
3……..SL-4	1133/1143	0	20.9	
5……..SL-5	1047/1057	0	20.9	
4………M-1	1107/1127	2	18	
6………M-2	1022/1042	2	16	
8………M-3	0950/1005	2	15	
1………M-4	1201/1221	0	19	

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JAN 26 2009

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Aug 24, 2008 | DATA COLLECTED BY: Kl

CALIBRATED TO METHANE: 50% City reads 52%

INSTRUMENT: Gastech CT048

WEATHER: clear

TEMPERATURE: ≈ 85°F | WIND: SE @ 12 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9.........SL-1	1515	60	—	
7.........SL-2	1347/1503	1	11.5	
2.........SL-3	1451/1511	2	<10	
3.........SL-4	1420/1443	0	20.9	
5.........SL-5	1412/1434	0	20.9	
4.........M-1	1404/1424	0	17.5	
6.........M-2	1345/1400	1	14.0	
8.........M-3	1326/1341	0	16.0	
1.........M-4	1446/1506	6	19.0	

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AUG 27 2008
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: May 23, 2008 | DATA COLLECTED BY: KL

CALIBRATED TO METHANE: 50% CH_4 reads 50%

INSTRUMENT: Gastech CT 048

WEATHER: p. cldy

TEMPERATURE: ≈ 55°F | WIND: ESE @ 30 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1320/1335	34	<10	
7........SL-2	1450/1505	1	10.5	
2........SL-3	1353/1402	2	10.5	
3........SL-4	1422/1432	0	20.9	
5........SL-5	1414/1443	0	20.9	
4.........M-1	1407/1427	1	18.0	
6.........M-2	1445/1500	1	16.5	
8.........M-3	1315/1330	2	17.0	
1.........M-4	1334/1358	1	19.0	

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Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: JAN 4 2008 **DATA COLLECTED BY:** 1d

CALIBRATED TO METHANE: 50% CH_4 reads 50%.

INSTRUMENT: Gastech CT 048

WEATHER: overcast

TEMPERATURE: ≈ 40°F **WIND:** SE @ 15 **mph**

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1405/1415	65	<10	
7........SL-2	1235/1247	1	20.9	
2........SL-3	1300/ —	0	20.9	
3........SL-4	1305/1329	0	20.9	
5........SL-5	1253/1320	0	20.9	
4.........M-1	1250/1310	2	19.0	
6.........M-2	1230/1245	1	20.9	
8.........M-3	1215/1230	2	15.5	
1.........M-4	1340/1400	1	16.5	

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JAN 11 2008

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Nov 12, 2007 **DATA COLLECTED BY:** JC

CALIBRATED TO METHANE: 50% CH_4 reads 50%

INSTRUMENT: Gastech CT048

WEATHER: mostly clear

TEMPERATURE: ≈ 50°F+ **WIND:** SW @ 20 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1245	79	—	
7........SL-2	1100/1125	2	<10	
2........SL-3	1155/	4	<10	
3........SL-4	1145/1206	0	20.9	
5........SL-5	1115/1135	0	20.9	
4.........M-1	1139/1154	1	16.0	
6.........M-2	1105/1120	0	12.5	
8.........M-3	1045/1100	1	12.5	
1.........M-4	1218/1238	1	16.0	

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JAN 11 2008
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Aug 25, 2007 | **DATA COLLECTED BY:** KL

CALIBRATED TO METHANE: 50% CH_4 reads 50%

INSTRUMENT: Gastech CT048

WEATHER: slightly overcast

TEMPERATURE: 65°F ↑ | **WIND:** SE @ 12 **mph**

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1230	83	—	
7........SL-2	1140/1155	2	<10	
2........SL-3	1044/1056	0	<10	
3........SL-4	1108/1126	0	20.9	
5........SL-5	1145/1200	0	20.9	
4.........M-1	1100/1120	1	15.5	
6.........M-2	1135/1150	1	11.5	
8.........M-3	1208/1223	1	14.0	
1.........M-4	1025/1050	0	16.5	

County Richland Co.
Facility & # Closed - Sidney #102
Closure
Finan Assur
GW Corr Meas
GW Monitoring
GW Reports
Inspections
Other:

Landfarm
Liner
[✓ Methane]
O & M
Run - On

AT mlle

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AUG 31 2007

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

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MAY 15 2007
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Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: May 12, 2007 | **DATA COLLECTED BY:** Kl

CALIBRATED TO METHANE: 50% CH_4 reads 50%

INSTRUMENT: Gastech CT048

WEATHER: Partly cloudy

TEMPERATURE: 72°F | **WIND:** SSE @ 20 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1400	65%	—	
7........SL-2	1310/1329	1	10.0	
2........SL-3	1235/1300	2	<10.	
3........SL-4	1230/1254	0	20.5	
5........SL-5	1200/1218	0	20.5	
4.........M-1	1225/1245	1	15.0	
6.........M-2	1307/1322	0	13.5	
8.........M-3	1335/1350	1	14.0	
1.........M-4	1140/1205	0	17.0	

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: JAN 20, 2007 | DATA COLLECTED BY: IQ

CALIBRATED TO METHANE: 50% CH_4 reads 50%

INSTRUMENT: Gastech CT 048

WEATHER: sunny

TEMPERATURE: T ≈ 30°F | WIND: NW @ 10 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9……..SL-1	1726	46	—	
7……..SL-2	1646/1656	1	11.0	
2……..SL-3	1517/1527	0	20.9	
3……..SL-4	1502/1512	0	20.9	
5……..SL-5	1618/1628	0	20.9	
4………M-1	1554/1614	0	18.0	
6………M-2	1635/1650	0	20.9	
8………M-3	1704/1719	2	15.0	
1………M-4	1530/1550	0	18.0	

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Nov 7, 2006 | DATA COLLECTED BY: KD

CALIBRATED TO METHANE: 50% CH_4 read 50%

INSTRUMENT: Gas tech CT 048

WEATHER: overcast

TEMPERATURE: ≈ 60°F | WIND: SW @ 20 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1440	78	—	
7........SL-2	1115/1127	2	<10	
2........SL-3	1007/1017	0	20.9	
3........SL-4	1205/1219	0	20.9	
5........SL-5	1037/1047	0	20.9	
4.........M-1	1020/1040	0	19.0	
6.........M-2	1055/1110	1	18.0	
8.........M-3	1418/1433	0	20.9	
1.........M-4	950/1010	0	20.0	

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JAN 18 2007

DEPT. OF ENVIRO. QUALITY
WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

RT

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SEP 22 2006

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Sept 19, 2006 | DATA COLLECTED BY: LG

CALIBRATED TO METHANE: 50% CH4 meds 50%

INSTRUMENT: Gastech 048 + CT 169**

WEATHER:

TEMPERATURE: | WIND: @ mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1259	75%	—	
7........SL-2	1415/1433	0	20.5	
2........SL-3	1235/1245	6	13.0	**
3........SL-4	1326/1336	0	20.9	
5........SL-5	1347/1400	0	20.9	
4.........M-1	1320/1340	4	17.5	**
6.........M-2	1352/1407	5	16.0	**
8.........M-3	1424/1444	0	19.5	
1.........M-4	1253/1313	6	17.0	**

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: May 12 06 | DATA COLLECTED BY: Kl

CALIBRATED TO METHANE: 50% CH4 mode 50%

INSTRUMENT: Gastech CT 048

WEATHER: partly sunny

TEMPERATURE: ≈ 63°F | WIND: SE @ 20 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9……..SL-1	1535	65%	—	
7……..SL-2	1335/1350	2	10.0	
2……..SL-3	1435/1445	4	10.0	
3……..SL-4	1405/1418	0	20.9	
5……..SL-5	1455/1505	0	20.9	
4………M-1	1350/1410	0	16.5	
6………M-2	1513/1528	2	12.5	
8………M-3	1325/1340	1	11.5	
1………M-4	1423/1443	1	17.0	

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MAY 18 2006
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

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MAR 23 2006
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: 3-3-06 | DATA COLLECTED BY: KL

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: Gastech CT 048

WEATHER: slight overcast, mostly sunny; ground snow covered

TEMPERATURE: ≈ 30 F | WIND: NW @ 15 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1534	50	12.5	
7........SL-2	1548/1602	2	11.5	
2........SL-3	1421/1431	3	12	
3........SL-4	1437/1447	0	20.9	
5........SL-5	1518/1528	0	20.9	
4.........M-1	1453/1513	2	17.5	
6.........M-2	1538/1553	2	15.5	
8.........M-3	1610/1625	2	16.0	
1.........M-4	1358/1417	0	17%	

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NOV 14 2005

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: July 14 2005 | DATA COLLECTED BY: [illegible]

CALIBRATED TO METHANE: 50% CH4 read 52%

INSTRUMENT: Mitchell CT048

WEATHER: Sunny, clear

TEMPERATURE: ≈ 95°F | WIND: NW @ 20 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1525	36	—	
7........SL-2	1435/1450	2	<10	
2........SL-3	1320/1335	0	20.9	
3........SL-4	1340/1350	0	20.9	
5........SL-5	1410/1425	0	20.9	
4........M-1	1355/1415	0	17.0	
6........M-2	1430/1445	1	14.5	
8........M-3	1455/1510	0	14.5	
1........M-4	1310/1330	0	17.0	

ATTN: PAT CROWLEY

Solid Waste Program

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Oct 12 05 | DATA COLLECTED BY: ld

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: Mosled CT 048

WEATHER: sunny, some clds

TEMPERATURE: = 60° | WIND: NW @ 20 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1430	72 %	<10	
7........SL-2	1450/1500	2	<10	
2........SL-3	1420/1430	2	<10	
3........SL-4	1437/1447	0	20.5	
5........SL-5	1415/1425	0	20.9	
4........M-1	1450/1510	0	17.0	
6........M-2	1530/1545	2	12.5	
8........M-3	1600/1625 ~~1415~~	1	15.0	
1........M-4	1350/1415	1	17.0	

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: April 13 2005 | DATA COLLECTED BY: Kl

CALIBRATED TO METHANE: NEW Bottle CH4 std. 50%; reads 50%

INSTRUMENT: Gastech CT048

WEATHER: slight overcast

TEMPERATURE: ≈ 60° | WIND: SE @ 20-25 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9……..SL-1	1515	460	12.0	
7……..SL-2	1430/1440	4	<10	
2……..SL-3	1306/1316	4	<10	
3……..SL-4	1340/1350	0	20.9	
5……..SL-5	1358/1408	0	20.9	
4………M-1	1324/1344	2	16.5	
6………M-2	1420/1435	1	13.5	
8………M-3	1450/1505	0	15.0	
1………M-4	1240/1300	0	17.5	

75.67

To:
"old man" Pat
Crowly

SolidWaste Prog.

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: JAN 5 2005 | DATA COLLECTED BY: ID

CALIBRATED TO METHANE: calibrated to 50% CH4 (fluctuated slightly)

INSTRUMENT: Mgastech CT048

WEATHER: clear cold ≈ 6" snow

TEMPERATURE: -30°F + 4 | WIND: 0 @ mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1305	80%		
7........SL-2	1230/1240	4	<10	
2........SL-3	1040/1050	2	<10	
3........SL-4	1145/1155	0	20.4	
5........SL-5	1200/1210	0	20.9	
4........M-1	1130/1150	0	<10	
6........M-2	1220/1235	2	12.0	
8........M-3	1245/1300	0	20.0	
1........M-4	1100/1120	0	18.5	

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JAN 11 2005
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

11-12-04

TO: PAT Crowley
DEQ - Solid Waste
Program

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NOV 16 2004

DEPT. OF ENVIRO. QUALITY
WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Nov 8 2004 **DATA COLLECTED BY:** JD

CALIBRATED TO METHANE: 50% CH_4 reads 50%

INSTRUMENT: Gastech GT-048

WEATHER: Sunny T= 50° F

TEMPERATURE: **WIND:** @ mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........**SL-1**	1230	66%	—	
7........**SL-2**	1245/1255	4	<10	
2........**SL-3**	1123/1133	2	<10	
3........**SL-4**	1140/1150	0	20.9	
5........**SL-5**	1220/1230	0	20.9	
4........**M-1**	1155/1215	2	18.0	
6........**M-2**	1235/1250	1	15.0	
8........**M-3**	1300/1315	1	17.0	
1........**M-4**	1056/1115	0	17.0	

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Aug 28 04 **DATA COLLECTED BY:** KO

CALIBRATED TO METHANE: 50% methane reads 50%

INSTRUMENT: Mistol CT 048

WEATHER: P. cldy

TEMPERATURE: **WIND:** SW @ 15 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9……..SL-1	1225/1235	35%	≤17%	
7……..SL-2	1354/1404	1	14.0	
2……..SL-3	1225/1235	2	<10	
3……..SL-4	1240/1250	0	20.9	
5……..SL-5	1320/1330	0	20.9	
4………M-1	1255/1315	0	16.0	
6………M-2	1337/1352	1	16.0	
8………M-3	1410/1425	1	17.0	
1………M-4	1155/1215	0	16.0	

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FEB 0 9 2004

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: JAN 12 2004 DATA COLLECTED BY: Kl

CALIBRATED TO METHANE: 50% CH_4 reads 52%

INSTRUMENT: Gastech CT048

WEATHER: Sunny, warm after cold snap

TEMPERATURE: ≃ 30°F WIND: NE @ 3 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1413	100%	—	
7........SL-2	1349/1358	0	19.5	
2........SL-3	1441/1451	0	20.0	
3........SL-4	1427/1437	0	20.9	
5........SL-5	1335/1345	0	20.9	
4........M-1	1525/1545	1	19.5	
6........M-2	1550/1605	1	19.5	
8........M-3	1615/1630	2	16.0	
1........M-4	1500/1520	1	19.0	

ATTN: PAT CROWLEY
Solid Waste Program

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Nov 20, 2003 ~~JAN 16 2003~~ | DATA COLLECTED BY: ld

CALIBRATED TO METHANE: 50% reads 50%

INSTRUMENT: Gastech GT048

WEATHER: ~~clear~~ mostly cldy

TEMPERATURE: ~~[illegible]~~ 28° | WIND: NW @10 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1106	100	—	
7........SL-2	1023/1033	0	20	
2........SL-3	0843/0855	0	20	
3........SL-4	0902/0915	0	20.9	
5........SL-5	0945/1000	0	20.9	
4........M-1	0921/0941	0	20	
6........M-2	1005/1020	0	20	
8........M-3	1040/1055	1	16	
1........M-4	0820/0840	0	20	

~~1-16-03 Battery bad~~
cold front moving thru;

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: 5-20-2003 **DATA COLLECTED BY:** KO

CALIBRATED TO METHANE: 50% reads 51%

INSTRUMENT: Gastec CT048

WEATHER: P. cldy

TEMPERATURE: 55°F **WIND:** SE @ 20 mph

STATION	TIME	PERCENT LEL	O₂	COMMENTS
9........SL-1	1728	70%		
7........SL-2	1745/1755	2	<10	
2........SL-3	1415/1425	2%	<10	
3........SL-4	1430/1440	0	20.9	
5........SL-5	1712/1722	0	20.9	
4.........M-1	1645/1705	1	14%	
6.........M-2	1728/1943	1	13%	
8.........M-3	1800/1815	1	11	
1.........M-4	1350/1410	0	14	

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: 2-19-03 | DATA COLLECTED BY: KL

CALIBRATED TO METHANE: 50% reads 52%

INSTRUMENT: Gastech CT 048

WEATHER: Sunny, wind

TEMPERATURE: ≈ 35°F | WIND: NW @ 15 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1606/1616	14	19	
7........SL-2	1524/1534	0	18.0	
2........SL-3	1358/1408	0	16.5	
3........SL-4	1343/1353	0	20.9	
5........SL-5	1320/1330	0	20.9	
4.........M-1	1440/1455	0	20.0	
6.........M-2	~~1440/1455~~	0	19.0	1500/1515
8.........M-3	1544/1559	2	20.0	
1.........M-4	1412/1432	0	20.0	

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MAR 03 2003
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Oct 25 2002 | DATA COLLECTED BY: KL

CALIBRATED TO METHANE: 50% reads 50%

INSTRUMENT: Gastech CT048

WEATHER: cldy, ground snow covered

TEMPERATURE: ≈ 25°F | WIND: SE @ 10 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9……..SL-1	1740	100		
7……..SL-2	1640/1650	0	<10	
2……..SL-3	1455/1505	4	<10	
3……..SL-4	1520/1535	0	20.9	
5……..SL-5	1410/1420	0	20.9	
4………M-1	1540/1600	0	16	
6………M-2	1630/1645	0	11	
8………M-3	1700/1715	0	13.5	
1………M-4	1426/1445	0	17	

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: July 23 02 | DATA COLLECTED BY: Kl

CALIBRATED TO METHANE: 50% CH4 reads 50%

INSTRUMENT: Mastech CT048

WEATHER: cldy

TEMPERATURE: 66°F | WIND: SE @ 15 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9……..SL-1	1355	100%		
7……..SL-2	1313/1323	2	<10	
2……..SL-3	1135/1150	0	<10	
3……..SL-4	1155/1205	0	20.9	
5……..SL-5	1138/1148	0	20.9	
4………M-1	1215/1235	1	14.5	
6………M-2	1255/1310	2	11.5	
8………M-3	1330/1345	1	14.0	
1………M-4	1113/1132	0	16	

RECEIVED

APR 30 2002

MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Apr.l 25 2002 | DATA COLLECTED BY: KD

CALIBRATED TO METHANE: 50% Methane

INSTRUMENT: CT048 / Gastecl

WEATHER: Sunny clear

TEMPERATURE: 24°F | WIND: NW @ 10 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1330	100%		
7........SL-2	1247/1257	2	12.5	
2........SL-3	1118/1128	4%	<10	
3........SL-4	1135/1145	0	20.9	
5........SL-5	1211/1221	0	20.9	
4........M-1	1148/1208	1	17.5	
6........M-2	1227/1242	1	16	
8........M-3	1304/1320	0	16.5	
1........M-4	1053/1113	1	17.5	

vent system installed

RECEIVED

JAN 14 2002

MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: JAN 5, 2002 | DATA COLLECTED BY: KO

CALIBRATED TO METHANE: 50% reads 50% no Adjustment

INSTRUMENT: Mudach CT-048

WEATHER: P. sunny

TEMPERATURE: ≈ 30°F | WIND: NW @ 10 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9……..SL-1	1524	66%		
7……..SL-2	1443/1453	0	20.9	
2……..SL-3	1251/1301	0	20.0	
3……..SL-4	1333/1343	0	20.9	
5……..SL-5	1410/1420	0	20.9	
4……...M-1	1347/1407	1	18.5	
6……...M-2	1425/1440	0	20.9	
8……...M-3	1501/1516	1	17.0	
1……...M-4	1308/1328	1	19.0	

RICHLAND COUNTY LANDFILL # 102
METHANE MONITORING

	SL-1		SL-2		SL-3		SL-4		SL-5		M-1		M-2		M-3		M-4	
date	CH_4	O_2	CH_4	O_2	CH_4	O_2	CH_4	O_2	CH_4	O_2	CH_4	O_2	CH_4	O_2	CH_4	O_2	CH_4	O_2
03/17/95	100		2	<10.0					0	20.9	2	15.5			2	<10.0	1	17.0
03/21/95					2	<10.0	0	20.5	0	20.9	1	14.5					1	17.5
/22/95	100		0	20.9									0	20.9	2	<10.0		
/26/95	100		0	<10.0	2	<10.0	0	20.5	0	20.5	1	14.0	0	<10.0	1	<10.0	1	13.5
08/29/95	100		<1	<10.0	4	<14.5	0	20.5	0	20.5	0	12.5	<1	<10.0	30	<10.0	1	<10.0
10/23/95	100		0	<10.0	0	20.9	0	20.5	0	20.9	1	13.5	0	<10.0	36	<10.0	1	11.5
02/23/96	100		0	20.9	0	20.9	0	20.5	0	20.9	1	15.0	0	20.5	4	<10.0	1	16.0
04/01/96	100		0	<10.0	4	<10.0	0	20.9	0	20.5	<1	12.5	0	<10.0	0	20.9	<1	13.5
07/10/96	100		2	<10.0	0	20.9	0	20.5	0	20.9	1	13.0	2	<10.0	2	<10.0	<1	11.5
10/30/96	100		0	20.9	0	20.9	0	20.9	0	20.5	<1	16.0	<1	16.0	2	<10.0	1	14.5
02/11/97	100		0	20.9	0	20.9	0	20.5	0	20.9	<1	16.0	0	19.5	0	11.0	0	17.0
04/01/97	100		<1	20.0	0	20.9	0	20.9	0	20.9	1	19.0	1	17.0	<1	11.0	1	17.0
09/09/97	100		0	<10.0	56	<10.0	0	20.5	0	20.5	0	13.5	0	<10.0	0	<10.0	0	13.5
10/15/97	100		4	<10.0	52	<10.0	0	20.9	0	20.9	1	15.5	1	10.0	1	12.0	0	14.5
01/06/98	100		0	20.9	23	13.0	0	20.9	0	20.9	1	15.0	0	17.5	0	12.0	0	18.0
04/02/98	100		0	11.5	0	20.9	0	20.9	0	20.5	0	17.0	0	17.0	1	10.5	0	18.0
08/12/98	100		0	<10.0	50	<10.0	0	20.9	0	20.9	0	15.0	0	<10.0	0	11.5	0	14.0
10/28/98	100		0	<10.0	54	<10.0	0	20.9	0	20.9	0	15.0	0	<10.0	0	13.0	0	14.0
01/16/99	100		2	12.0	0	20.9	0	20.9	0	20.9	0	20.9	0	16.0	0	10.0	0	17.5
04/29/99	100		0	<10.0	32	<10.0	0	20.9	0	20.9	0	14.0	1	10.0	2	<10.0	0	14.0
07/28/99	100		2	<10.0	0	20.9	0	20.9	0	20.9	0	13.0	0	<10.0	1	12.0	0	13.0
09/13/99	100		4	<10.0	1	19.5	0	20.9	0	20.9	0	14.5	0	<10.0	1	12.0	0	14.0
11/23/99	100		4	<10.0	30	<10.0	0	20.9	0	20.9	0	17.5	0	<10.0	0	17.0	2	15.0
01/17/00	66	17.0	0	16.5	0	21.0	0	20.9	0	20.9	0	17.0	0	13.0	0	13.0	0	18.0
04/18/00	100		4	<10.0	8	<10.0	0	20.0	0	20.9	1	15.0	2	13.0	2	14.0	2	16.0
07/20/00	100		4	<10.0	10	<10.0	0	20.9	0	20.9	0	15.0	<1	11.0	1	11.0	1	16.0
10/20/00	100		4	<10.0	8	<10.0	0	20.9	0	20.9	2	15.0	4	10.0	2	12.0	2	16.0
01/17/01	100				8	<10.0	0	20.9	0	20.9	4	15.5	4	<10.0	8	<10.0	4	16.5
04/23/01	100		5	13.0	5	15.0	0	20.9	0	20.9	3	15.0	10	<10.0	5	14.0	5	15.5
08/24/01	100		0	20.0	0	13.5	0	20.9	0	20.9	0	15.5	0	20.5	0	13.5	0	14.5
10/25/01	100		0	20.9	0	20.9	0	20.9	0	20.0	0	17.5	0	20.5	2	15.5	1	17.5

ATTN:
Pat Crowley
Solid Waste
Program

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NOV 05 2001

MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: 10-25-01 | DATA COLLECTED BY: JQ

CALIBRATED TO METHANE: 50% methane reads 50%

INSTRUMENT: Gastech CT048

WEATHER: overcast T=

TEMPERATURE: ≈ 30°F | WIND: NW @ 15 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1515	100		
7........SL-2	1438/1448	0	20.9	
2........SL-3	1013/1023	0	20.9	
3........SL-4	1026/1036	0	20.9	
5........SL-5	1113/1123	0	20	
4.........M-1	1040/1115	0	17.5	
6.........M-2	1128/1148	0	20.5	
8.........M-3	1455/1510	2	15.5	
1.........M-4	0951/1010	1	17.5	

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: Aug 24 2001 | DATA COLLECTED BY: IO

CALIBRATED TO METHANE: 50% reads 50%

INSTRUMENT: Gastech CT.048

WEATHER: hot dry

TEMPERATURE: 90°F | WIND: NW @ 10 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1740	100		
7........SL-2	1700/1710	0	20.0	
2........SL-3	1545/1555	0	13.5	
3........SL-4	1600/1610	0	20.9	
5........SL-5	1628/1638	0	20.9	
4.........M-1	1614/1624	0	15.5	
6.........M-2	1642/1657	0	20.5	
8.........M-3	1718/1733	0	13.5	
1.........M-4	1520/1540	0	14.5	

mailed 8-29-01

METHANE MONITORING WELLS
RICHLAND COUNTY LANDFILL # 102

DATE: 4-23-01 | DATA COLLECTED BY: KO

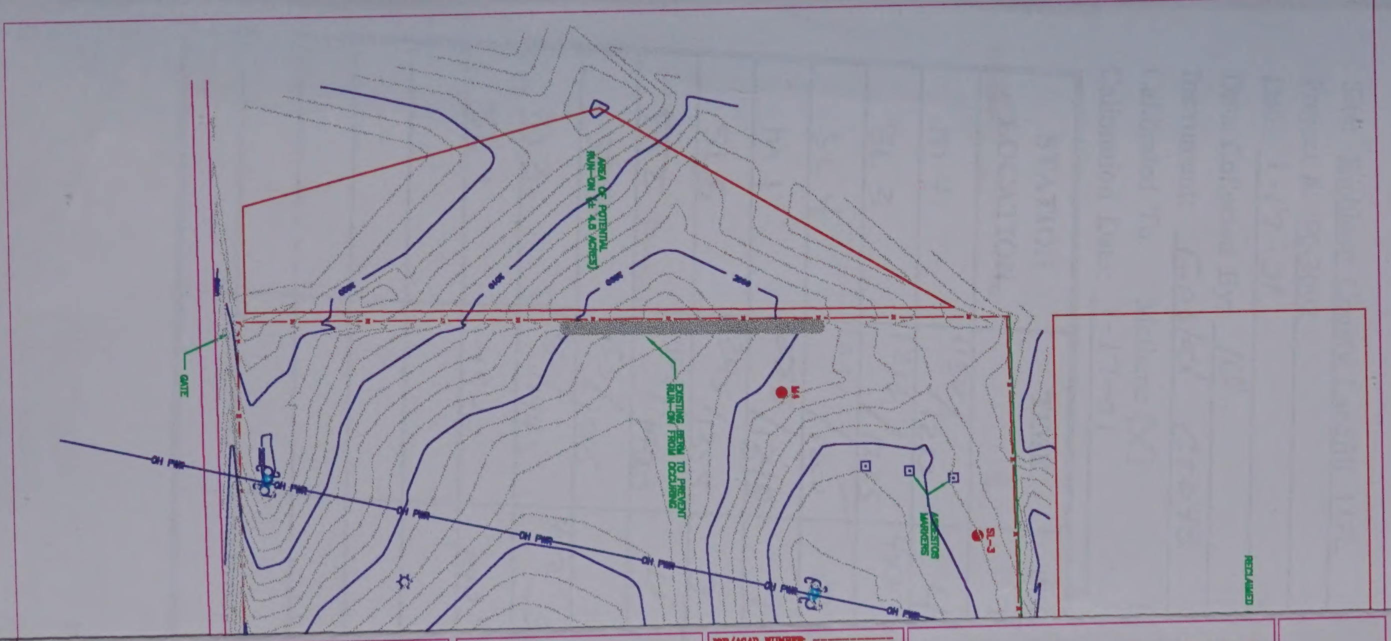
CALIBRATED TO METHANE: 50% LEL reads 48%

INSTRUMENT: GasTech CT-048

WEATHER: sunny, clear

TEMPERATURE: ≈ 55°F | WIND: NW @ 15 mph

STATION	TIME	PERCENT LEL	O_2	COMMENTS
9........SL-1	1730 ~~1440~~/~~1500~~	100		
7........SL-2	1645/1655	5	13	
2........SL-3	1505/1515	5	15.0	
3........SL-4	1522/1532	0	20.9	
5........SL-5	1405/1415	0	20.9	
4.........M-1	1540/1600	3	15	
6.........M-2	1620/1640	10	<10	
8.........M-3	1500/1515	5	14	
1.........M-4	1440/1500	5	15.5	


RECLAIMED
SL-3
ASBESTOS MARKERS
EXISTING BERM TO PREVENT RUN-ON FROM OCCURING
AREA OF POTENTIAL RUN-ON (± 4.5 ACRES)
GATE
OH PWR

RICHLAND COUNTY
SOLID WASTE DISTRICT
Sidney, Montana

JOB/ACAD NUMBER: ---------------
DRAWN BY: [illegible] & Assoc.
EDITED BY: R. Hustari
CHECKED BY:
DATE: FEB,2001
PLOT SCALE: NTS

SHEET TITLE
SITEPLAN

PROJECT TITLE
CLOSED LANDFILL #102
Gas Collection System

#	DATE	REVISION
△		
△		
△		
△	[illegible]	R.Hustari
△	[illegible]	RL.

SHEET NO.
1 of 1

Please Log This
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Delivered in
person To me.
Pat.

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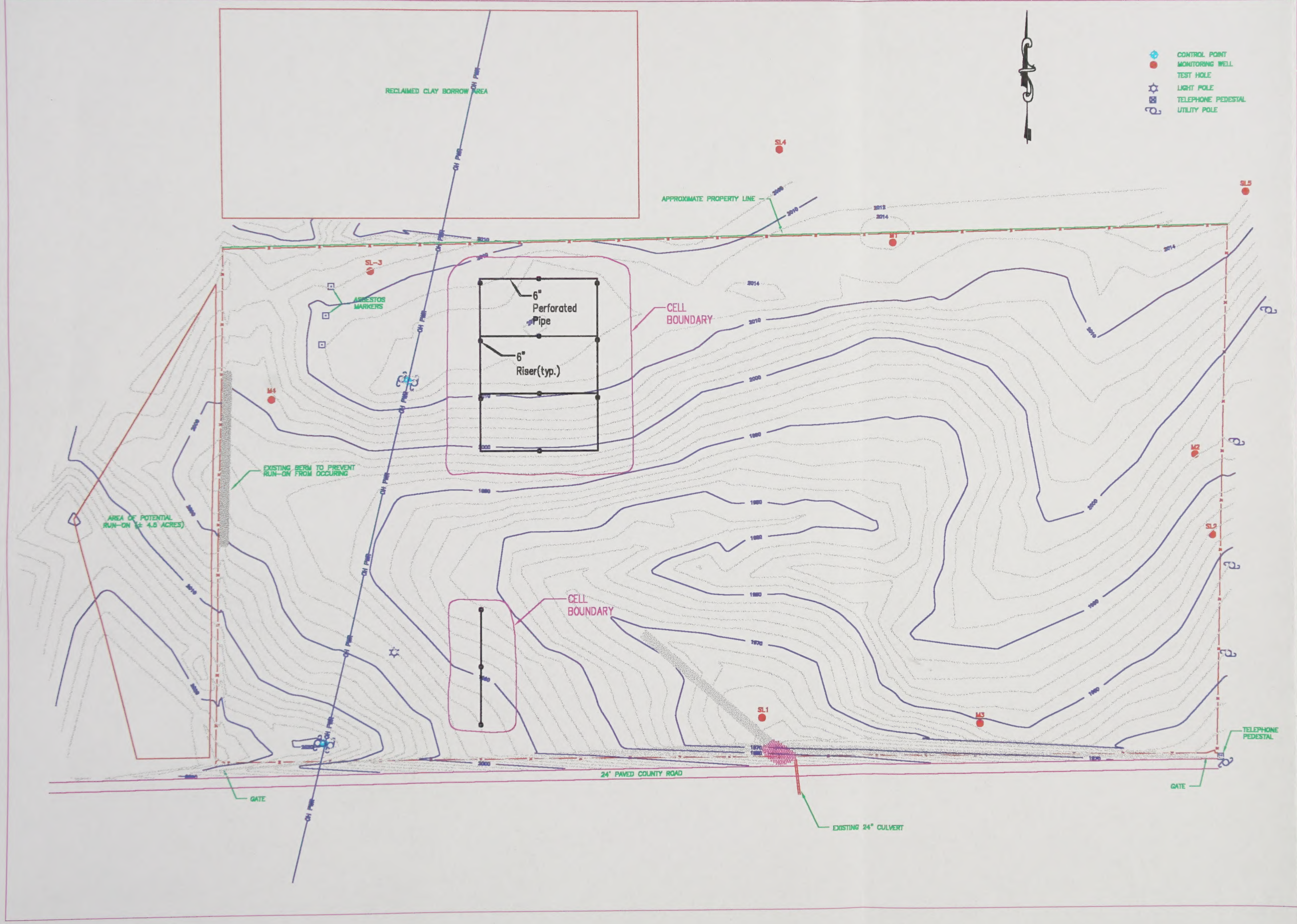
COMMUNITY SERVICES BUREAU



RICHLAND COUNTY
SOLID WASTE DISTRICT
Sidney, Montana

JOB/ACAD NUMBER: ---
DRAWN BY: Dannenhaus & Assoc.
EDITED BY: R. Huntari
CHECKED BY:
DATE: FEB,2001
PLOT SCALE: NTS

SHEET TITLE
SITEPLAN

PROJECT TITLE
CLOSED LANDFILL #102
Gas Collection System

#	DATE	REVISION
△		
△		
△		
△	[illegible]	R.Huntari
△	[illegible]	BL

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METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill 102

Project #: 90-3092

Date: 1-17-01

Data Collected By: JC

Instrument: Gastech GT048

Weather: Light-snow wind N@20 mph

Temperature: 19° F units

Barometric Pressure: units

Comments:

Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]

Calibration Date: 1-17-01

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
m4	1150/1210	4 %	16.5 O2
SL3	1213/1225	4x2 8%	<10
SL4	1231/1250	0	20.9
m1	1325/1340	4	15.5
SL5	1345/1355	0	20.9
m2	1405/1420	4	<10 %
SL2	1455/1505		
m3	1430/1445	4x2 8 %	<10%
SL1	1530	100 %	

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JAN 26 2001
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COMMUNITY SERVICES BUREAU

mailed 1-25-01

Monthly Focus:
Relationships—
Who are the people
that matter most to you?

It's all right to hold a conversation, but
you should let go of it now and then.
— rd Armour

16
Friday
February 2001

Daily Record of Events

47th Day 318 Left Week 7

✓ Russ Hotari - Sidney
433-2106
Budget 15-20 Thou for
Old L.F. —
Topo file also. – Sending Plan
after Tues –

✓ Paul Montgomery

Phone log.
F.P. Crowley
16 Feb 2001

Corrective action plan
To be sent after Solid Waste
Board meeting on 2/20/2001.

To:

Pat Crowley
Solid Waste
Program

769-2126

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill
Project #: 90-3092
Date: 10-20-2000
Data Collected By: Kl
Instrument: Gastech GT 418

Weather: Sunny SE wind 15 mph
Temperature: ______ units
Barometric Pressure: ______ units
Comments: ______

Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]
Calibration Date: 10-20-2000 reads 50%

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M4	~~0910~~ 0930	2	16% O_2
SL3	0935/0945	4×2 8%	<10%
SL4	0955/1005	0	20.9
M1	1010/1030	2	15%
SL5	1120/1130	0	20.9
M2	1135/1150	4	<10%
SL2	1155/1205	4	<10%
M3	1110/1125	2	12%
SL1	1240	100%	

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OCT 24 2000
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill

Weather: overcast NW@10mph

Project #: 90-3092

Temperature: ≈70 units

Date: 7-20-00

Barometric Pressure: units

Data Collected By: Jll

Comments:

Instrument: Gastech CT048.

Calibrated To: Methane [✓] Hexane [ ] Isobutylene [ ]

Calibration Date: 7-20-00

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
m4	1400/1420	1	O_2 16%
SL-3	1423/1433	5x2 10%	<10%
SL-4	1440/1450	0	21%
m1	1455/1515	0	15
SL-5	1518/1528	0	21
m2	1535/1550	<1	11
SL2	1553/1603	2x2 4	<10
m3	1610/1625	1	11
SL-1	1630	100%	

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill

Project #: 90-3092

Date: April 18-00

Data Collected By: KI

Instrument:

Weather: Sunny NE wind 15mph

Temperature: ≈55°F units

Barometric Pressure: units

Comments:

Calibrated To: Methane [✓] Hexane [ ] Isobutylene [ ]

Calibration Date: 4-18-00

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M-4	1150/1210	2	16% O_2
SL-3	1200/1300	8	<10
SL-4	1320/1400	0	20
M-1	1420/1440	1	15
SL-5	1445/1525	0	21
M2	1530/1545	2	12%
SL2	1550/1620	4	<10
M3	1625/1640	2	14
SL-1	1650	100	

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill
Project #: 90-3092
Date: 1-17-00
Data Collected By: KD
Instrument: CT 048 GasTech
Weather: sunny clear wind SW@ 15
Temperature: to 35°F units
Barometric Pressure: units
Comments:

Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]
Calibration Date: 1-17-00 read 60% adjust 2 to 50% LEL

STATIO LOCATI	TIME	PERCENT	COMMENTS
M4			18% O2
SL-3			21% O2
SL-			21% O2
M-			17%
SL-			21%
M			13%
SL2			16.5%
M3	1155/1210	0	13%
SL-1	1215/1225	66%	17%

County Richland
Facility & # Siding (old)
Closure
Finan Assur
GW Corr Meas
GW Monitoring
GW Reports
Inspections
Other:
Landfarm
Liner
[✓ Methane]
O & M
Run - On

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill
Project #: 90-3092
Date: 11-23-99
Data Collected By: Kl
Instrument: CT248

Weather: Sunny
Temperature: 30°F units
Barometric Pressure: units
Comments:

Calibrated To: Methane [ ] Hexane [ ] Isobutylene [ ]
Calibration Date: 11-23-99

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M4	1150/1210	2	15% O2
SL 3	1220/1230	30	<10%
SL 4	1245/1315	0	20.9
~~MH~~ M1	1320/1340	0	17.5
SL 5	1350/1400	0	20.9
M2	1405/1425	0	<10%
SL2	1420/1430	4	<10%
M3	1435/1450	0	17%
SL1	to	100%	

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DEC 01 1999
MONTANA
T. OF ENVIRONMENTAL
MMUNITY SERVIC

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill 102
Project #: 90-3092
Date: Sept 13 1999
Data Collected By: KL
Instrument: Gastech CT 048
Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]
Calibration Date: 9-13-99 Adjusted to 50% LEL

Weather: p. cldy 20mph NW wind
Temperature: 58 F units
Barometric Pressure: units
Comments:

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
m4	1020/1040	0	14% O_2
SL3	1045/1100	1	19.5%
SL4	1108/1120	0	21%
m1	1125/1145	0	14.5%
SL5	1150/1200	0	21%
m2	1205/1220	0	<10%
SL2	1225/1240	2x2 = 4%	<10%
m3	1245/1300	1	12%
SL1	1308	100%	

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SEP 20 1999
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill 102
Weather: Sunny, SW 10-15 mph
Project #: 90-3092
Temperature: 65°F units 4 to 100°F
Date: 7-28-99
Barometric Pressure: units
Data Collected By: 1L
Comments:
Instrument: CT 093 Adjusted to 50% LEL
Calibrated To: Methane [✓] Hexane [ ] Isobutylene [ ]
Calibration Date: 7-28-99

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
m4	0634/0654	0	O_2 13%
SL3	0700/0715	0	O_2 21
SL4	0722/0735	0	O_2 21
m1	0740/0800	0	O_2 13%
SL5	0805/0820	0	O_2 21
m2	0825/0840	0	O_2 <10%
SL2	0845/0900	2	O_2 <10%
m3	0910/0925	1	O_2 12%
SL1	0930	100	

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AUG 2 1999
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

ATTN: PAT CROWLEY

~~COP~~
Solid Waste Program

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MAY 06 1999
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

Sidney (old) Methane

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill 102
Project #: 90-3092
Date: April 29 99
Data Collected By: Kl
Instrument: Gastech CT048
Weather: p.cldy windy SE @ 20mph
Temperature: 65°F units
Barometric Pressure: ___ units
Comments: ___

Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]
Calibration Date: 4-29-99 recal @ 1300 OK reads 50%

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M3	1304/1325	0	O_2 14%
SL3	1330/1340	16x2=32	O_2 <10%
SL4	1345/1355	0	21
M1	1400/1420	0	14
SL5	1425/1435	0	20
M2	1440/1455	1	10
SL2	1500/1510	0	<10
M3	1518/1533	2	<10
SL1	1540	100 %	

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill #102
Weather: clear sunny
Project #: 90-3092
Temperature: 20°F units
Date: 1-15-99
Barometric Pressure: units
Data Collected By: KO
Comments:
Instrument: GasTech CT048
Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]
Calibration Date: 1-15-99 50% LEL READS 50%

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
m3	0835/0855	0	17.5 O_2
SL3	0900/0920	0	20.4
SL4	0925/0940	0	20.9
m1	0945/1005	0	20.9
SL5	1015/1030	0	20.9
m2	1035/1050	0	16%
SL2	1055/1110	2	12% Buried by snow, dug out
m3	1120/1135	0	10%
SL1	1150	100%	

10/28/98

ATTN: Pat Crowley
Solid Waste

Methane
Old [illegible]
Richland Co

RECEIVED
NOV 02 1998
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill #102
Project #: 90-3092
Date: Oct 28 98
Data Collected By: Kl
Instrument: Gastech GT 048
Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]
Calibration Date: 10/28/98

Weather: p. cldy
Temperature: 52°F units
Barometric Pressure: units
Comments:

STATION LOCATION	TIME	PERCENT LEL	COMMENTS O_2
M4	1020/1040	0	14%
SL3	1045/1100	2x 27 54%	<10 → 10%
SL4	1110/1125	0	21%
M1	1135/1155	0	15%
SL5	1200/1215	0	21%
M2	1225/1240	0	<10 → 13%
SL2	1245/1300	0	<10 → 13%
M3	1315/1330	0	13%
SL1	1340	100%	

County Richland
Facility & # " Co. 102
Closure
Finan Assur
GW Corr Meas
GW Monitoring
GW Reports
Inspections
Other:
Landfarm
Liner
[✓ Methane]
O & M
Run - On
4-4

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill #102
Project #: 90-3092
Date: Aug 12 98
Data Collected By: JD
Instrument: CT048 Gastech
Weather: Sunny
Temperature: 90°F+ units
Barometric Pressure: units
Comments:
Calibrated To: Methane [✓] Hexane [ ] Isobutylene [ ]
Calibration Date: Aug 12 98 - to 50% LEL

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
m4	1230/1250	0	O_2 14%
SL3	1255/1310	25 x 2 = 50%	0 <10% → 10%
SL4	1320/1335	0	21%
m1	1345/1405	0	15%
SL5	1410/1425	0	21%
m2	1430/1445	0	<10% → 14%
SL2	1448/1503	0	<10% → 13%
m3	1510/1525	0	11.5
SL1	1530	100%	

RECEIVED
APR [illegible]
MONTANA
DEPT OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill
Project #: 90-3092
Date: April 2 98
Data Collected By: KL
Instrument: CT 048

Weather: sunny, 3mph SE
Temperature: 35 units
Barometric Pressure: units
Comments: T up to 60°F today

Calibrated To: Methane ☒ Hexane ☐ Isobutylene ☐
Calibration Date: 4/2/98

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
m4	0853/0913	0	18% O2
SL3	0915/0930	0	20.9
SL4	0940/0950	0	20.9
m1	0955/1015	0	17
SL5	1021/1031	0	20.5
m2	1036/1051	0	17
SL2	1048/1058	0	11.5 (started air out)
m3	1105/1120	1	10.5
SL1	1125/1140	100	

RECEIVED
APR 07 1998
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

ATTN: PAT CROWLEY

Sidney old L.F.
Methane

RECEIVED
JAN 12 1998
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill
Project #: 90-3092
Date: 01-06-98
Data Collected By: KL
Instrument: CT-0418 Mastech

Weather: NW 10MPH
Temperature: 10°F units
Barometric Pressure: units
Comments:

Calibrated To: Methane [✓] Hexane [ ] Isobutylene [ ]
Calibration Date: 1/6/98 50% LEL Reads 50% LEL

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M4	1014/1023	0	18% O_2
SL3	1029/1052	23%	13%
SL4	0949/1002	0	O_2 20.9
M1	1100/1120	1	15% O_2
SL5	1255/1310	0	20.9
M2	1335/1350	0	17.5
SL2	1314/1328	0	20.9
M3	1357/1415	0	12% O_2
SL1	1430	100% LEL	

Mailed 1-7-98

TO: Pat Crowley
Solid Waste

Methane
Old Richld Co
L.F.

RECEIVED
OCT 20 1997
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill #102

Project #: 90-3092

Date: 10-15-97

Data Collected By: JC

Instrument: Gastech CT048

Weather: sunny calm

Temperature: 65° units

Barometric Pressure: units

Comments:

Calibrated To: Methane [✓] Hexane [ ] Isobutylene [ ]

Calibration Date: 10-17-97

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
m4	1500/1520	0	O_2 14.5%
SL3	1525/1535	26% x 2 = 52%	O_2 <10 → 11.5
SL4	1540/1552	0	20.9
m1	1557/1617	1	15.5%
SL5	1620/1630	0	20.9
m2	1635/1650	1	10%
SL2	1655/1705	2x2=4	<10 → 13% O_2
m3	1710/1725	1	12
SL1	1730	100%	

ATTN PAT CROWLEY

Old Sidney L.F. Methane

RECEIVED
SEP 12 1997
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill

Weather: Sunny Calm

Project #: 90-3092

Temperature: 75°F units

Date: Sept 9 97

Barometric Pressure: units

Data Collected By: Kl

Comments:

Instrument:

Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]

Calibration Date: 9-~~8~~9-97 50% LEL READS 50%

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M4	1450/1510	0	O_2 13.5%
SL3	1610/1620	28% × 2 = 56	O_2 <10% → 11.5%
SL4	1629/1639	0	O_2 20.5
~~SL5~~ M1	1650/1710	0	O_2 13.5
~~[illegible]~~ SL5	1715/1726	0	O_2 20.5
M2	1740 /1755 ~~1805~~	0	< 10% → 14%
SL2	1805/1815	0	<10 → 13.5%
M3	1825/1840	0	<10 → 15%
SL1	1846	100%	

4-1

Methane co
Richland #102

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill 102
Project #: 90-3092
Date: 4-1-97
Data Collected By: JO
Instrument: Gastech CT048
Calibrated To: Methane [✓] Hexane [ ] Isobutylene [ ]
Calibration Date: 4/01/97 @ 1215

Weather: cldy windy 20mph NW
Temperature: 40°F units
Barometric Pressure: units
Comments:

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M4	1220/1240	1	O2 17
SL3	1243/1253	0	20.9
SL4	1257/1307	0	20.9
M1	1311/1321	1	19
SL5	1325/1335	0	20.9
M2	1342/1357	1	17
SL2	1402/1412	<1	20.2
M3	1420/1435	<1	11
SL1	1450	100 %	

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill #102
Project #: 90-3092
Date: Feb 11 . 97
Data Collected By: LO
Instrument: Gastech CT048
Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]
Calibration Date: 2/11/97 @ 1320 rds 50%

Weather: p. cldy NW wind 10mph
Temperature: 20°F units
Barometric Pressure: units
Comments: Approx 1.5 ft hard snow on ground - path bladed by county

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M4	1545/1605	0	17 Snow to top of casing some snow inside
SL3	1526/1536	0	20.9 O_2
SL4	1507/1517	0	20.7 O_2 snow to top of casing
M1	1442/1502	<1	16% O_2
SL5	1421/1431	0	O_2 20.9
M2	1347/1402	0	O_2 19.5%
SL2	1404/1415	0	O_2 20.9% Buried by snow, dug out
M3	1325/1340	0	O_2 11%
SL1	1418	100%	slow to reach 100%

mailed 2-12-97

7-11-96

TO:

PAT CROWLEY
Solid waste

ld

RECEIVED

JUL 12 1996

Montana Department of
Environmental Quality
Waste Management Division

Richland Co Inf.
Methane
1045-

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill 102

Project #: ~~90-3092~~ old

Date: July 10, 96

Data Collected By: Kelly Logan

Instrument: GAsTech CT048

Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]

Calibration Date: July 10, 96 LEL 50% @ 1130

Weather: cldy, windy 10mph south

Temperature: 76°F units

Barometric Pressure: units

Comments:

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M 4	1133/1152	< 1	O_2 11.5% well OK
SL 3	1156/1206	0	O_2 20.9
SL 4	1214/1224	0	O_2 20.7
M 1	1230/1250	1	O_2 13
SL 5	1255/1305	0	O_2 20.9
M 2	1315/1330	(1 x 2) = 2 %	O_2 < 10 → 14.5
SL 2	1323 Air out/1333	(1x2) = 2%	O_2 < 10 → 13 well ok
M 3	1345/1400	(1x2) = 2%	O_2 < 10 → 13
SL 1	1409	100	

Wells OK chopped weeds around casing

mailed 7-11-96

Richland Co #120
Methane

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill old
Project #: 90-3092
Date: 4-1-96
Data Collected By: KD
Instrument: Gastech CT 048

Weather: cldy wndy 10-15mph
Temperature: 26°F units
Barometric Pressure: units
Comments: snow covered chained up

Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]
Calibration Date: 4-1-96 LEL 50%

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M-4	909/0928	<1	13.5 O_2 WELL OK
SL3	0938/0943	3.5	<10 ⇒ 11.5 O_2 stabilized
SL4	0950/1000	0	20.9
M1	1006/1026	<1	12.5
SL5	1030/1040	0	20.7
M2	1045/1108	0	40 ⇒ 14
SL2	1105/1115	0	<10 ⇒ 11.5 WELL OK
M3	1126/1140	0	20.9
SL1	1148	100	

0645
1215
5 1/2

ATTN: PAT CROWLEY
methane.

RECEIVED
MAR 06 1996
Montana Department of
Environmental Quality
Waste Management Division

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

#102

Site: Richland County Landfill old
Project #: 90-3092
Date: Feb 23 96
Data Collected By: Kelly Logan
Instrument: Gas Tech GT 048
Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]
Calibration Date: 2-23-96 50% LEL no adjustment necessary

Weather: clear 10-15 mph wind
Temperature: 20°F units
Barometric Pressure: units
Comments:

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M-4	0738/0758	~~2~~ 1	O_2 15.8% stabilized
SL-3	0808/0812	0	O_2 20.9
SL-4	0819/0830	0	O_2 20.7
M-1	0834/0855	1	O_2 15
SL-5	0900/0910	0	O_2 20.9
M-2	0914/0930	0	O_2 20.7
SL-2	0935/0945	0	O_2 20.9 / ice hanging on inside of pipe
M-3	0950/1005	4% (2% x 2)	O_2<10% to 13.5%
SL-1	1015	100	—

NOTE: AIR OUT H_2O monitoring wells before taking reading

M2- O_2 down to 15.5 then rose to 20.7%
pushed pipe down, pipe was hit by loader & busted pipe, hooked with coupler?

SL-2 ice inside metal casing, ice strips frozen onto plastic pipe - inside pipe

RECEIVED
OCT 27 1995
Montana Department of Environmental Quality
Waste Management Division

ATTN: PAT CROWLEY

File
Old Richland Methane

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill OLD
Project #: 90-3092
Date: Oct 23 95
Data Collected By:
Instrument: Gastech CT148

Weather: Sunny
Temperature: 40°F units
Barometric Pressure: units
Comments: 5

Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]
Calibration Date: 10-23-95 50% reads 50% no adjustment

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M4	0955/1013	1	O_2 11.5 stabilized readings
SL 3	1017/1040	0	O_2 20.9 stabilize - no change
SL4	1050/1112	0	O_2 · 20.7
M1	1120/1144	1	O_2 13.5 stabilized
SL5	1328/1352	0	20.9 - O_2
M2	1359/1412	0	O_2 <10 - 1.15. stabilized
SL2	1420/1444	0	O_2 <10 - 13.5 stabilized
M3	1450/1510	(2x18) 36%	O_2 <10 - 10.8 (1 casing out)
SL1	1516/1517	100%	100%
stockwell	1520 1532	0	O_2 - 16%

check
meter
ecalibrated
- no adjustment

IMPORTANT MESSAGE

FOR Pat C.

DATE 6/26 TIME 3:13 A.M. P.M.

M Kelly Logan

OF Richland Co Landfill

PHONE 482-2207
AREA CODE NUMBER EXTENSION

☐ FAX

☐ MOBILE
AREA CODE NUMBER TIME TO CALL

TELEPHONED		PLEASE CALL	
CAME TO SEE YOU		WILL CALL AGAIN	
WANTS TO SEE YOU		RUSH	
RETURNED YOUR CALL		SPECIAL ATTENTION	

MESSAGE high methane reading at landfill.

SC1 - 100%

SIGNED

TOPS FORM 3002P LITHO IN U.S.A.

ATTN: PAT ROWLEY

RECEIVED

JUN 29 1995

Montana Department of rcs Health
and Environmental Sciences
Waste Management Division

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill

Project #: 90-3092

Date: 6-26-95

Data Collected By: IC

Instrument: Gastech Tanktechtor # CT 048

Calibrated To: Methane ☒ Hexane [ ] Isobutylene [ ]

Calibration Date: 6-26-95 50% LEL No Adjustment

Weather: Sunny, clear, southwind 5 mph

Temperature: 83F@143 units

Barometric Pressure: units

Comments:

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M4	1020/1025	0-1%	O_2 13.5% WELL OK
SL3	1031/1113	2%	O_2 10%/14↓ methane stabilized Well OK O_2↓
SL4	1121/1136	0	O_2 20.5 well OK
M1	1141/1156	<1%	O_2 13.8 stabilize well OK (needs nipple)
SL5	1201/1212	0	O_2 20.5 stabilized well OK
M2	1216/1226	0	O_2 10%/15.5 stabilize well OK
SL2	1230/1250	0	O_2 10%/15.5% well OK (need diversion)
M3	1254/1259	<1%	O_2<10%/13 well OK
SL1	1214/1214	100%	O_2 — well OK
Stockwell	1230/1235	0	O_2 15.5% increase (rig Adaptor)
office	1243	0	

DISTRICT SANITARIAN
RICHLAND AND McCONE COUNTY HEALTH DEPARTMENTS

221 5th St. S.W. Sidney, MT 59270 Phone: 406 482-2207

MEMORANDUM

RECEIVED
MAR 27 1995
Montana Department of Health
and Environmental Sciences
Waste Management Division

TO: Pat Crowley

FROM: Kelly Logan, R.S. kl

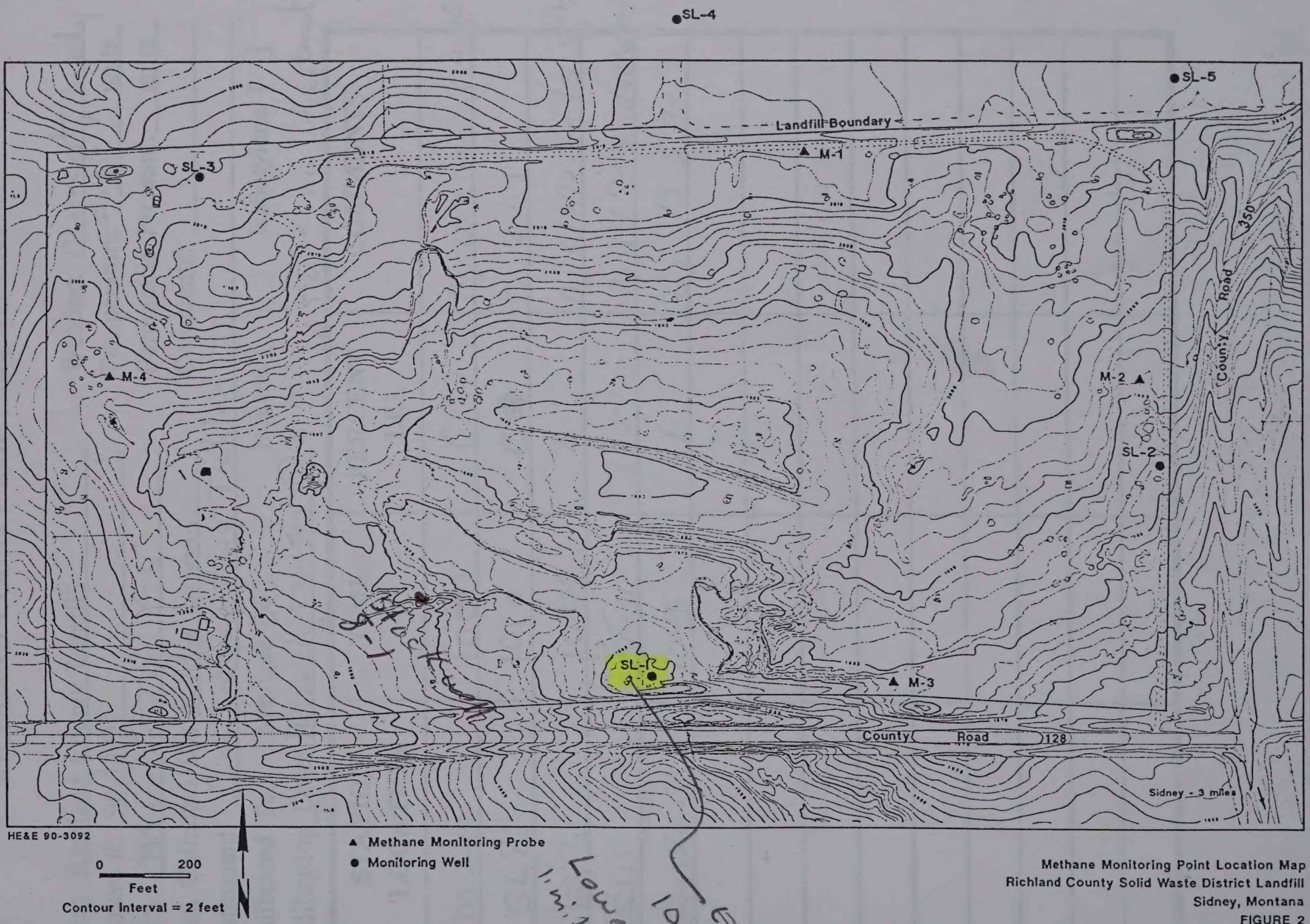
DATE: March 23, 1995

SUBJECT: Methane monitoring

The results from the methane monitoring conducted at the Sidney landfill are enclosed. Groundwater monitoring well, SL 1, had a LEL reading exceeding 100%. All other monitoring well had readings between 0 to 2%.

Landfill personnel were notified of the high reading. Per phone conversation (March 21) the risk associated with a high LEL reading should be minimal due to the rural location of the landfill, the distance to the nearest resident, and the wind dissipating any methane before it becomes a problem.

If any further action is required you are requested to notify us. Thank you.



Methane Monitoring Point Location Map
Richland County Solid Waste District Landfill
Sidney, Montana
FIGURE 2

Exceeds 100% Lower Explosive limit (LEL)

All other monitoring sites
0-2% LEL -(satisfactory)

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill

Project #: 90-3092

Date: March 22, 95

Data Collected By: Kelly Logan

Instrument: GasTech - Tank Techtor

Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]

Calibration Date: March 22-95 @ site 50% no adjustment

Weather: Overcast, windy

Temperature: ≈ ~10° units

Barometric Pressure: units

Comments:

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
M2	1000	0	O_2 20.9% hu. K direct
SL2	1010	0	O_2 20.9
M3	1024	2	O_2 <10% → 15.5%
SL1	1030/1031	100%	O_2 14% + decreasing
Stockwell	1045	1	O_2 15.5%

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill

Weather: windy, overcast

Project #: 90-3092

Temperature: ______ units

Date: March 21 1995

Barometric Pressure: ______ units

Data Collected By: Kelly Logan

Comments: ______

Instrument: Tank Techtor

Calibrated To: Methane [X] Hexane [ ] Isobutylene [ ]

Calibration Date: 3-21-95 @ site

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
office	1046	0	
storage, oil	1051	0	
M4	1103	1	O_2 17.5 hook direct
SL3	1113	2	<10% → 14.5% O_2
SL4	1130	0	O_2 20.5%
M1	1142	2	O_2 14.5%
SL5	1155	0	O_2 20.7%
M2	Battery low on meter		

@ 1400 talked to Pat Crowley - said to write letter within 7 days, said landfill remote & methane dissipated by wind & distance before it becomes problem

METHANE MONITORING LOG
RICHLAND COUNTY SANITARY LANDFILL

Site: Richland County Landfill
Project #: 90-3092
Date: 3-17-95
Data Collected By: Kelly Logan
Instrument: TANK-TECHTOR

Weather: Sunny, slight Breeze
Temperature: ________ units
Barometric Pressure: ________ units
Comments: ________

Calibrated To: Methane ☒ Hexane ☐ Isobutylene ☐
Calibration Date: 3-17-95 50% LEL No Adjustment @ 1030

STATION LOCATION	TIME	PERCENT LEL	COMMENTS
office	1036	0	
oil Building	1038	0	
MA	1100	1%	17% O_2 (valve open) closed it
SL3	couldn't get cap off @ 1107		
SL4	"	" "	" @ 1114
M1	1124	2%	valve closed 15.5% O_2 stabilized
SL5	1133	0	O_2 - 20.9 cap upside down, dusty
M2	1140	—	valve closed, couldn't get cap off
SL2	1149	2%	READING 1% x 2 = 2% O_2 < 10% switched probes O_2 15.5%
M3	1207	2	READING 1 x 2 = 2% O_2 < 10 switched probes O_2 15.2%
SL1	1221	100%	READING 100% x 2 diluted O_2 13%
	let meter adjust to 0 ppm & O_2 & took 2nd reading		
stockwell	1235	2%	O_2 15.5

NOTIFID DHES - John DiNicird on 3-17-95 @ ≃ 1530 agreed to Retest wells & get all caps off & verify high reading

KL

Check meter calibration @ 1630 50% methane read 54%

File: Sidney l.f.
Methane

er[illegible]al approval
10/12/94 3:50pm
FR Crowley
Standard Format
Standard Ops.
Standard design.
Wells to depth of waste.

Huntingdon

600 South 25th Street
P.O. Box 30615
Billings, Montana 59107
(406)248-9161
FAX (406)248-9282

FAX TRANSMITTAL

TO: Pat Potts

COMPANY: WMD

FAX NUMBER: 406-444-1499 JOB NUMBER

FROM: John Olson

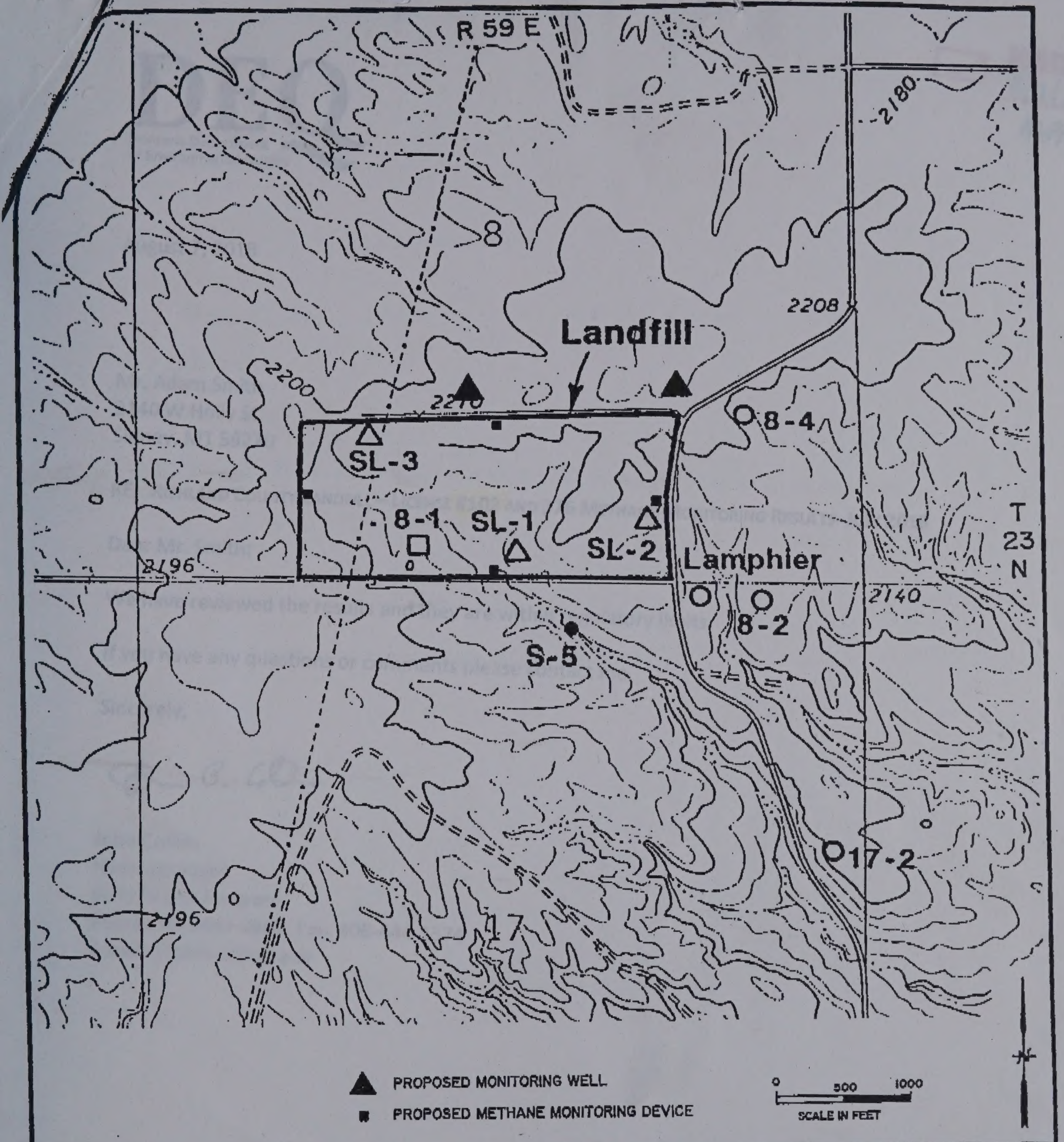
DATE: 10/12/94 # OF PAGES 2 (including this page)

If there are any problems receiving this fax, contact:

Cyndi Webber at (406) 248-9161

MESSAGE: The following is a map of proposed well & Methane monitoring points for the Richland County landfill. If these locations are acceptable to the WMD, we can install them next week. We will submit a full methane monitoring plan to you later this week. The plan will be similar to other such plans we have sent to the WMD. I will call back on this matter latter this afternoon

SENT BY:



Huntingdon
ENGINEERING & ENVIRONMENTAL, INC.

RICHLAND COUNTY SOLID WASTE DISTRICT LANDFILL
SIDNEY, MONTANA

PROPOSED MONITORING POINT LOCATIONS

DATE	DRAWN BY	REVIEWED	SCALE	PROJECT NO.	FIGURE
9/30/94	LNR	JRR	AS SHOWN	90-3092	1

DEQ
Montana Department
of Environmental Quality

MAILED
8/7/18
mam

August 7, 2018

Mr. Adam Smith
2140 W Holly St
Sidney, MT 59270

RE: **Richland County Landfill – License #102 and 376 Methane Monitoring Results- July 2018**

Dear Mr. Smith:

We have reviewed the results and they are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Hydrogeologist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

DEQ
Montana Department
of Environmental Quality

MAILED
JUN 11 2018

June 11, 2018

Mr. Adam Smith
2140 W Holly St
Sidney, MT 59270

RE: **Richland County Landfill – License #102 Methane Monitoring Results May 2018**

Dear Mr. Smith:

We have reviewed the results and they are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Hydrogeologist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

Correspondence Slip

Originator: JL

te Requested: 6-6-18

Date Needed By: 6-11-18

REVIEW ROUTING

Name	Task	Initial/Date
SARA NELSEN	Proof	SN, 6/7
KT		KT, 6-7-18
		/
		/

Mail original via:
☒ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Mail copy of enclosures to CC's? Y [✓ N]

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y N

Special Instructions:

EMAIL copy sent to Project Originator? Y N

DEQ
Montana Department
of Environmental Quality

MAILED
1/26/18
mfm

January 26, 2018

Mr. Adam Smith
2140 W Holly St
Sidney, MT 59270

RE: **Richland County Landfill – License #102 and License # 376 Received Methane Monitoring Results – January 2018**

Dear Mr. Smith:

We have reviewed the results and they are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Hydrogeologist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, 1201 W Holly St Ste 5, Sidney, MT 59270

DEQ
Montana Department
of Environmental Quality

MAILED
11-3-17 sn

November 3, 2017

Mr. Adam Smith
2140 W Holly St
Sidney, MT 59270

**RE: Richland County Landfill – License #102 and License # 376 Received
Methane Monitoring Results – October 2017**

Dear Mr. Smith:

The results for the October 2017 methane monitoring for the above referenced closed Class II Landfill and for the open Class II Landfill, have been reviewed and are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Hydrogeologist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, 1201 W Holly St Ste 5, Sidney, MT 59270

DEQ
Montana Department
of Environmental Quality

✓
MAILED
8/25/17
mfm

August 25, 2017

Mr. Adam Smith
2140 W Holly St
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILL – LICENSE #102 AND LICENSE # 376 RECEIVED METHANE MONITORING RESULTS – JULY 2017**

Dear Mr. Smith:

The results for the July 2017 methane monitoring for the above referenced closed Class II Landfill and for the open Class II Landfill, have been reviewed and are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Hydrogeologist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 W Holly St Ste 5, Sidney, MT 59270

DEQ
Montana Department
of Environmental Quality

MAILED
5-3-17 SN

May 2, 2017

Mr. Adam Smith
2140 W Holly St
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILL – LICENSE #102 AND LICENSE # 376 RECEIVED METHANE MONITORING RESULTS – APRIL 2017**

Dear Mr. Smith:

The results for the April 2017 methane monitoring for the above referenced closed Class II Landfill and for the open Class II Landfill, have been reviewed and are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Hydrogeologist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 W Holly St Ste 5, Sidney, MT 59270

DEQ
Montana Department
of Environmental Quality

April 4, 2017

MAILED
4-4-17 SN

Mr. Adam Smith
2140 W Holly St
Sidney, MT 59270

RE: **Richland County Landfill – License #102 and License # 376 Received Methane Monitoring Results – February 2017- Corrected date for letter dated March 29, 2017**

Dear Mr. Smith:

The results for the February 2017 methane monitoring for the above referenced closed Class II Landfill and for the active Class II Landfill, have been reviewed and are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Hydrogeologist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, 1201 W Holly St Ste 5, Sidney, MT 59270

DEQ
Montana Department
of Environmental Quality

MAILED
3-29-17 SW

March 29, 2017

Mr. Adam Smith
2140 W Holly St
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILL – LICENSE #102 AND LICENSE # 376 RECEIVED METHANE MONITORING RESULTS – FEBRUARY 2016**

Dear Mr. Smith:

The results for the February 2016 methane monitoring for the above referenced closed Class II Landfill and for the active Class II Landfill, have been reviewed and are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Hydrogeologist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, 1201 W Holly St Ste 5, Sidney, MT 59270

Correspondence Slip

Date Requested: 3-21-17

Originator: JC

Date Needed By: 3-22-17

REVIEW ROUTING

Name	Task	Initial/Date
SARA NELSEN	Proof	SN, 3/21
MLH (out)		MLH, 3-28
RT		RT, 3-28-17
		/

Mail original via:
☑ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Special Instructions:

Mail copy of enclosures to CC's? Y [✓ N]

Copies of enclosures for file needed? Y [✓ N]

Copy of ~~letter for~~ file needed? [✓ Y] N

Email copies sent? Y N

EMAIL copy sent to Project Originator? Y N

DEQ
Montana Department
of Environmental Quality

MAILED
9/1/16 SH

September 1, 2016

Mr. Adam Smith
2140 W Holly St
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILL – LICENSE #102 AND LICENSE # 376 RECEIVED METHANE MONITORING RESULTS – AUGUST 2016**

Dear Mr. Smith:

The results for the August 2016 methane monitoring for the above referenced closed Class II Landfill and for the open Class II Landfill, have been reviewed and are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Hydrogeologist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 W Holly St Ste 5, Sidney, MT 59270

Correspondence Slip

Originator: ~~8-30-16~~ JC

Date Requested: 8-30-16

Date Needed By: 9-1-16

REVIEW ROUTING

Name	Task	Initial/Date
SARA NELSON	Proof	SN / 8/30
mlH		[illegible] / 8-31
RT		RT / 9-1-201
		/

Mail original via:
● Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Special Instructions:

Please make a copy of this letter for each file.

Mail copy of enclosure to CC's? Y [✓ N]

Copies of enclosures for file needed? Y

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y

EMAIL copy sent to Project Originator? Y N

DEQ
Montana Department
of Environmental Quality

MAILED
AS 9-29-15

September 28, 2015

Mr. Russell Huotari
2140 W Holly St
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILL – LICENSE #102 AND #376**
RECEIVED – AUGUST 2015 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The reports for the August 2015 methane monitoring period for both the active Richland County Class II Landfill, and the old Class II Landfill have been reviewed. The previous reports from the two landfills were for January 2015. Methane monitoring is required to be conducted quarterly. Please provide the second quarter report, with the fourth quarter report.

The results are within regulatory limits, with the exception of monitoring stations, SL-1 and SL-18 at the old Landfill. SL-1 and SL-18 have exceedances of 72% and 71 %, respectively, of the Lower Explosive Limit. Previous monitoring has also shown periodic exceedances at these locations. While this is likely attributed to the proximity of these stations to the waste cells, it will be continue to be closely monitored.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Hydrogeologist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 W Holly St Ste 5, Sidney, MT 59270

orrespondence Slip

Da equested: 9-21-15

Originator: JC

Date Needed By: 9-28-15

REVIEW ROUTING

Name	Task	Initial/Date
Andrea	Proof	AS / 9/25/15
MEH		/ 9/28
RT		RT / 9-28-15
		/

Mail original via:
● Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Special Instructions:

Mail copy of enclosures to CC's? [✓ Y] N

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y N

EMAIL copy sent to Project Originator? Y N

MAILED
2/9/15 mfm

DEQ
Montana Department
of Environmental Quality

February 9, 2014

Mr. Russell Huotari
2140 W Holly St
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILL – LICENSE #102 AND #376**
RECEIVED – JANUARY 2015 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The results of the January 2015 methane monitoring event for the Richland County Class II Landfill, in Sidney, Montana have been reviewed and are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins, Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 W Holly St Ste 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring

Steve Bullock, Governor I Tom Livers, Director I P.O. Box 200901 I Helena, MT 59620-0901 I (406) 444-2544 I www.deq.mt.gov

Montana Department of
ENVIRONMENTAL QUALITY

Steve Bullock, Governor
Tracy Stone-Manning, Director

P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • Website: www.deq.mt.gov

November 21, 2014

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILL – LICENSE #102 AND #376**
RECEIVED – OCTOBER 2014 METHANE MONITORING RESULTS

Dear Mr. Huotari:

I have reviewed the results of the October 2014 methane monitoring event for the Richland County Class II Landfill, License #102 and #376, in Sidney, Montana. All of the results of the methane monitoring are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring

Correspondence Slip

Date Requested: 11/18/14

Originator: JC

Date Needed By: 11/20/14

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	/ 11-18
MLH		mch / 11-19
RT		RT / 11-19-14
		/

Mail original via:
☑ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Special Instructions:

Mail copy of enclosures to CC's? [✓ Y] N

Copies of enclosures for file needed? Y/

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y N

EMAIL copy sent to Project Originator? Y N

Montana Department of
ENVIRONMENTAL QUALITY

Steve Bullock, Governor
Tracy Stone-Manning, Director

P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • Website: www.deq.mt.gov

MAILED
8-1-14 jh

August 1, 2014

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILL – LICENSE #102 AND #376**
RECEIVED – JULY 2014 METHANE MONITORING RESULTS

Dear Mr. Huotari:

I have reviewed the results of the July 2014 methane monitoring event for the Richland County Class II Landfill, License #102 and #376, in Sidney, Montana. All of the results of the methane monitoring are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring

Correspondence Slip

Date Requested: 7/18/14

Originator: JC

Date Needed By: 7/23/14

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	/ 7-18
MLH		Mlh 7-30
RT		RT / 7-31-14
		/

Mail original via: ☑ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Mail copy of enclosures to CC's? [✓ Y] N

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y N

Special Instructions:

EMAIL copy sent to Project Originator? Y N

MAILED
12-16-13 jh

Montana Department of
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Steve Bullock, Governor
Tracy Stone-Manning, Director

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December 16, 2013

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **CLOSED RICHLAND COUNTY LANDFILL – LICENSE #102**
RECEIVED – NOVEMBER 2013 METHANE MONITORING RESULTS

Dear Mr. Huotari:

I have reviewed the results of the November 2013 methane monitoring event for the closed Richland County Class II Landfill, License #102, in Sidney, Montana. All of the results of the methane monitoring are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring

Correspondence Slip

Date Requested: 12-12-13

Date Needed By:

Originator: JC

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	Jh / 12-12
mlH		mlh / 12-12
[illegible]		[illegible] / 12-13-13
RT		RT / 12-16-13

Mail original via: ☑ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Mail copy of enclosures to CC's? [✓ Y] N

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y N

Special Instructions:

please file the results
in the network file.
John C.

EMAIL copy sent to Project Originator? Y N

MAILED
12-11-13 jh

Montana Department of
ENVIRONMENTAL QUALITY

Steve Bullock, Governor
Tracy Stone-Manning, Director

P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • Website: www.deq.mt.gov

October 9, 2013

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **CLOSED RICHLAND COUNTY LANDFILL – LICENSE #102**
RECEIVED – JULY 2013 METHANE MONITORING RESULTS

Dear Mr. Huotari:

I have reviewed the results of the July 2013 methane monitoring event for the closed Richland County Class II Landfill, License #102, in Sidney, Montana. With the exception of the exceedence at well SL-17 the results of the methane monitoring are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

John Collins
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: jcollins3@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring

Correspondence Slip

Da equested: 10-7-13

Originator: JC

Date Needed By: ______

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	Jh / 10-7
mdH	reviewed	
~~BW~~		/
RT		RT / 10-9-13

Mail original via:
● Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\______

Special Instructions:

Mail copy of enclosures to CC's? Y N

Copies of enclosures for file needed? Y N

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y N

EMAIL copy sent to Project Originator? Y N

MAILED
5-1-13 Jh

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Montana Department of
ENVIRONMENTAL QUALITY

Steve Bullock, Governor
Tracy Stone-Manning, Director

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May 2, 2013

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **CLOSED RICHLAND COUNTY LANDFILL – LICENSE #102**
RECEIVED – APRIL 2013 METHANE MONITORING RESULTS

Dear Mr. Huotari:

Thank you for submitting the results of the April 2013 methane monitoring event for the closed Richland County Class II Landfill, License #102, in Sidney, Montana. The results of the methane monitoring are within regulatory limits.

If you have any questions or comments please contact me.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring

Correspondence Slip

Date Requested: 4/24/13

Date Needed By: 4/29/13

Originator: MVO

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	Jh, 4-24
MaryH	Review	mch 4/24
Bruce	↓	BD, 4-29-13
Rick		RT, 5-1-13

Mail original via: ☒ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Special Instructions:

Mail copy of enclosures to CC's? Y [✓ N]

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y [✓ N]

EMAIL copy sent to Project Originator? Y N

MAILED
1-18-12 jh

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ENVIRONMENTAL QUALITY

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January 17, 2013

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **CLOSED RICHLAND COUNTY LANDFILL – LICENSE #102**
JANUARY 2013 METHANE MONITORING RESULTS

Dear Mr. Huotari:

I have reviewed the results of the January 2013 methane monitoring event for the closed Richland County Class II Landfill, License #102, in Sidney, Montana. With the exception of the exceedance at well SL-17 the results of the methane monitoring are within regulatory limits.

If you have any questions or comments regarding this review, please contact me.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring

Correspondence Slip Date Requested: 1/14/13

Originator: MVO Date Needed By: 1/17/13

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	1-14
MaryH	Review	mch 1-15
Bruce	↓	12-16-13
Rick		RL 1-17-13

Mail original via:
☒ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Special Instructions:

Mail copy of enclosures to CC's? Y [✓ N]

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y [✓ N]

EMAIL copy sent to Project Originator? Y N

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
11-7-12

November 7, 2012

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **CLOSED RICHLAND COUNTY LANDFILL – LICENSE #102**
OCTOBER 2012 METHANE MONITORING RESULTS

Dear Mr. Huotari:

I have reviewed the results of the October 2012 methane monitoring event for the closed Richland County Class II Landfill, License #102, in Sidney, Montana. With the exception of the exceedance at well SL-17 the results of the methane monitoring are within regulatory limits.

If you have any questions or comments regarding this review, please contact me.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring

Correspondence Slip

Originator: MVO
Date Requested: 10/31/12
Date Needed By: 11/1/12

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	/ 10/31
Bruce	Review	/ 11-2-12
Rick	↓	R 11-5-12
		/

Mail original via:
☒ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Special Instructions:

Mail copy of enclosures to CC's? [✓ Y] N

Copies of enclosures for file needed? [✓ Y] N

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y [✓ N]

EMAIL copy sent to Project Originator? Y N

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

October 4, 2012

Mr. Russell Huotari
2140 W. Holly Street
Sidney, MT 59270-5700

RE: **CLOSED RICHLAND COUNTY LANDFILL – LICENSE #102**
MAY 2012 SAMPLING REPORT

Dear Mr. Huotari:

I have reviewed the May 2011 groundwater sampling report for the closed Richland County Class II Landfill, License #102, in Sidney, Montana. The groundwater sampling report meets the requirements of the Administrative Rules of Montana Title 17, Chapter 50, Subchapter 13.

The facility remains in corrective action with semi-annual monitoring at this time. If you have any questions or comments regarding this review, please contact me.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St, Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Ground Water Monitoring

Correspondence Slip

Date Requested: 9/27/12

Originator: MVO

Date Needed By: 9/28/12

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	DS / 9/27/12
Mary H	Review	9-28
Rick	↓	/ 9-28-12
		RT 10-4-12

Mail original via:
● Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Special Instructions:

Mail copy of enclosures to CC's? Y [✓ N]

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y [✓ N]

EMAIL copy sent to Project Originator? Y N

MAILED
7-19-12

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

July 19, 2012

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **CLOSED RICHLAND COUNTY LANDFILL – LICENSE #102**
JULY 2012 METHANE MONITORING RESULTS

Dear Mr. Huotari:

I have reviewed the results of the July 2012 methane monitoring events for the closed Richland County Class II Landfill, License #102, in Sidney, Montana. The results of the methane monitoring are within regulatory limits.

If you have any questions or comments regarding this review, please contact me.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring

Correspondence Slip

Date Requested: 7/17/12

Originator: MVO

Date Needed By: 7/19/12

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	Jh / 7-17-12
MaryH	Review	[illegible] / 7-12
Bruce	↓	[illegible] / 7-18-12
Rick		RL / 7-18-12

Mail original via:
☒ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Mail copy of enclosures to CC's? Y [✓ N]

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y [✓ N]

Special Instructions:

EMAIL copy sent to Project Originator? Y N

MAILED
6-13-12 jh

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

June 13, 2012

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILLS – LICENSES #102 AND #376**
APRIL 2012 METHANE MONITORING RESULTS

Dear Mr. Huotari:

I have reviewed the results of the April 2012 methane monitoring events for the Richland County Class II Landfills, Licenses #102 and #376, in Sidney, Montana. The results of the methane monitoring are within regulatory limits with the exception of exceedance at well LG-2 at landfill #376. If the exceedance at LG-2 persists corrective action may be necessary to reduce methane concentrations.

If you have any questions or comments regarding this review, please contact me.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Richland Co.\Richland Co. Class II\License #376\Methane Monitoring

Correspondence Slip

Date Requested: 6/11/12

Originator: MVO

Date Needed By: 6/13/12

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	6-11-12
Mary H	Review	6-12
Rick	↓	6-12-12
		/

Mail original via: ☒ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\

Mail copy of enclosures to CC's? Y [✓ N]

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y [✓ N]

Special Instructions: One copy of letter for each file: #102 + #376.

EMAIL copy sent to Project Originator? Y N

MAILED
2-14-12 Sh

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

February 14, 2012

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILLS – LICENSES #102 AND #376**
JANUARY 2012 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Solid Waste Program has reviewed the results of the January 2012 methane monitoring events for the Richland County Class II Landfills, Licenses #102 and #376, in Sidney, Montana. The results of the methane monitoring are within regulatory limits with the exception of exceedance at well LG-2 at landfill #376. If the exceedance at LG-2 persists corrective action may be necessary to reduce methane concentrations.

If you have any questions or comments regarding this review, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Richland Co.\Richland Co. Class II\License #376\Methane Monitoring

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
10-24-11

October 20, 2011

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILLS – LICENSES #102 AND #376**
OCTOBER 2011 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Solid Waste Program has reviewed the results of the October 2011 methane monitoring events for the Richland County Class II Landfills, Licenses #102 and #376, in Sidney, Montana. The results of the methane monitoring are within regulatory limits with the exception of exceedance at well LG-2 at landfill #376. Please recheck the methane concentrations at landfill #376 during November 2011 to evaluate the duration of these exceedances.

If you have any questions or comments regarding this review, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Richland Co.\Richland Co. Class II\License #376\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2011-10_Richland_102_&_376_CH4.docx

Enforcement Division • Permitting & Compliance Division • Planning, Prevention & Assistance Division • Remediation Division

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

September 29, 2011

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILLS – LICENSES #102 AND #376**
SEPTEMBER 2011 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Solid Waste Program has reviewed the results of the September 2011 methane monitoring events for the Richland County Class II Landfills, Licenses #102 and #376, in Sidney, Montana. The results of the methane monitoring are consistent with previous reports with the exception of exceedances at well SL-1 at Landfill #102 and well LG-2 at landfill #376 are within regulatory limits. Please recheck the methane concentrations at both landfills during October 2011 to evaluate the duration of these exceedances.

If you have any questions or comments regarding this review, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Richland Co.\Richland Co. Class II\License #376\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2011-09_Richland_102_&_376_CH4.docx

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
6-8-11 Jh

June 7, 2011

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILLS – LICENSES #102 AND #376**
APRIL 2011 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Solid Waste Program has reviewed the results of the April 2011 methane monitoring events for the Richland County Class II Landfills, Licenses #102 and #376, in Sidney, Montana. The results of the methane monitoring are within regulatory limits and are consistent with previous reports.

If you have any questions or comments regarding this review, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Richland Co.\Richland Co. Class II\License #376\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2011-04_Richland_102_&_376_CH4.docx

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
12-10-10

December 10, 2010

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILLS – LICENSES #102 AND #376**
NOVEMBER 2010 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Solid Waste Program has reviewed the results of the November 2010 methane monitoring events for the Richland County Class II Landfills, Licenses #102 and #376, in Sidney, Montana. The results of the methane monitoring are within regulatory limits and are consistent with previous reports.

If you have any questions or comments regarding this review, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Richland Co.\Richland Co. Class II\License #376\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2010-11_Richland_102_&_376_CH4.docx

MAILED
10/1/10 mfm

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 ∘ Helena, MT 59620-0901 ∘ (406) 444-2544 ∘ www.deq.mt.gov

October 1, 2010

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILLS – LICENSES #102 AND #376**
SEPTEMBER 2010 METHANE MONITORING PLAN

Dear Mr. Huotari:

The Department has reviewed the September 2010 methane monitoring plan for the Richland County Class II Landfills, Licenses #102 and #376, in Sidney, Montana. The Department approves the methane monitoring plan and will include it in our files. Please use the procedures in this plan for all future methane monitoring events.

If you have any questions or comments regarding this review, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Richland Co.\Richland Co. Class II\License #376\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2010-09_Richland_102_&_376_MMP.doc

MAILED
7-29-10 Ju

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

July 29, 2010

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILLS – LICENSES #102 AND #376**
JULY 2010 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Department has reviewed the results of the July 2010 methane monitoring events for the Richland County Class II Landfills, Licenses #102 and #376, in Sidney, Montana. The results of the methane monitoring are within regulatory limits and are consistent with previous reports.

The Methane Monitoring Plans for both facilities are from 1995. Please review these plans to determine if they accurately represent the current methane monitoring procedures. If these plans are accurate, please notify the Department by August 30, 2010. If the plans are no longer accurate, please submit updated methane monitoring plans to the Department by October 28, 2010.

If you have any questions or comments regarding this review, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Richland Co.\Richland Co. Class II\License #376\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2010-07_Richland_102_&_376_CH4.doc

Correspondence Slip

Date Requested: 7/28/10

Originator: MVO

Date Needed By: 7/30/10

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	Jh / 7-28-10
Mary H	Review	mlh / 7-29
Darrell	↓	das / 7-29
Rick		

Mail original via:
☒ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\ See letter

Mail copy of enclosures to CC's? Y [✓ N]

Special Instructions:
Copy of letter for both files:
#102 & #376

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

Email copies sent? Y [✓ N]

EMAIL copy sent to Project Originator? Y N

MAILED
7-1-10 Jh

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

July 1, 2010

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILL – LICENSE #102**
JUNE 2010 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Department has reviewed the results of the June 2010 methane monitoring events for the closed Richland County Class II Landfill, License #102, in Sidney, Montana. The results of the methane monitoring are within regulatory limits and are consistent with previous reports.

If you have any questions or comments regarding this review, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2010-06_Richland_102_CH4.doc

MAILED
2-5-10

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

February 5, 2010

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILL – LICENSE #102**
NOVEMBER 2009 AND JANUARY 2010 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Department has reviewed the results of the November 2009 and January 2010 methane monitoring events for the closed Richland County Class II Landfill, License #102, in Sidney, Montana. The results of the methane monitoring are within regulatory limits and are consistent with previous reports.

If you have any questions or comments regarding this review, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

File: Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2009-11_2010-01_Richland_CH4.doc

Enforcement Division • Permitting & Compliance Division • Planning, Prevention & Assistance Division • Remediation Division

Correspondence Slip

Project ID:

Requested: 2/4/10

Needed By: 2/8/10

Originator: MVD

Org(s)/Mail Code:

REVIEW ROUTING

Name	Task	Initial/Date
Admin	Proof	Jh, 2-4-10
Mary H	Review	mlh, 2-4
Darrell	Review	das, 2-4
Rick	Review	RT, 2-5-10

Mail original via:
☒ Regular ○ Certified ○ Registered ○ FedEx

Fax to addressee at:

Proof Path: G:\WUT\ See letter

Special Instructions:

Mail copy of enclosures to CC's? Y [✓ N]

Copies of enclosures for file needed? Y [✓ N]

Copy of letter for file needed? [✓ Y] N

MAILED
10-29-09

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

October 29, 2009

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270

RE: **RICHLAND COUNTY LANDFILLS – LICENSE #102 AND #376**
JULY 2009 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Department has reviewed the results of the July 2009 methane monitoring events for the above noted facilities. The results of the methane monitoring are within regulatory limits and consistent with previous reports.

If you have any questions or comments regarding this review, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

File: Richland Co.\Richland Co. Class II\License #376\Methane Monitoring
Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2009-07_Richland_CH4.doc
cc: Mr. Kelly Logan, Richland County Sanitarian, 1201 West Holly St., Suite 5, Sidney, MT 59270

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
5-11-09 JL

May 8, 2009

Mr. Russell Huotari
2140 Holly Street
Sidney, MT 59270-5700

RE: **RICHLAND COUNTY LANDFILLS – LICENSE #102 AND #376**
SECOND QUARTER 2009 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Department has reviewed the results of the second quarter 2009 methane monitoring events for the above noted facilities. The results are within regulatory limits and consistent with previous reports.

For the active landfill, #376, please monitor for methane in all facility structures in the future as required by Administrative Rule of Montana 17.50.511(1)(f)(i).

If you have any questions regarding this review, please contact me directly at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

File: Richland Co.\Richland Co. Class II\License #376\Methane Monitoring
Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2009-04_Richland_CH4.doc
cc: Mr. Kelly Logan, Richland County Sanitarian, 221 5th St SW, Sidney, MT 59270

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
4-29-09 jh

April 29, 2009

Mr. Russell Huotari
2140 Holly Street
Sidney, MT 59270-5700

RE: **RICHLAND COUNTY LANDFILLS – LICENSE #102 AND #376**
FIRST QUARTER 2009 METHANE MONITORING RESULTS

Dear Mr. Huotari:

The Department has reviewed the results of the first quarter 2009 methane monitoring events for the above noted facilities. The results are within regulatory limits and consistent with previous reports.

For the active landfill, #376, please monitor for methane in all facility structures in the future as required by Administrative Rule of Montana 17.50.511(1)(f)(i).

If you have any questions regarding this review, please feel free to contact me directly at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Program.

Sincerely,

Martin Van Oort
Environmental Science Specialist
Solid Waste Program
Phone: 406-444-2802, Fax: 406-444-1374
E-mail: mvanoort@mt.gov

File: Richland Co.\Richland Co. Class II\License #376\Methane Monitoring
Closed\Richland Co.\Richland Co. Class II\License #102\Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\2009-02_2009-03_Richland_CH4.doc
cc: Mr. Kelly Logan, Richland County Sanitarian, 221 5th St SW, Sidney, MT 59270

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
9-14-07

September 13, 2007

Mr. Russell Huotari
RICHLAND COUNTY LANDFILL
2140 Holly Street
Sidney, MT 59270-5700

RE: AUGUST 2007 METHANE MONITORING
RICHLAND COUNTY LANDFILL #376 AND CLOSED RICHLAND COUNTY LANDFILL #102

Dear Mr. Huotari:

The Department has reviewed the results of the August 2007 methane monitoring events for the above noted facilities. The results are within regulatory limits.

If you have any questions regarding this review, please feel free to contact me directly at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Program.

Sincerely,

Mary Louise Hendrickson

Mary Louise Hendrickson
Environmental Science Specialist
Solid Waste Regulatory Program
Phone: 406-444-1808; Fax: 406-444-1374
Email: mhendrickson@mt.gov

File: Richland County/Richland County Landfill/Lic.#102 and # 376/Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\Richland-CH4-091307.doc

MAILED
5-23-06 jh

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

May 23, 2006

Mr. Russell Huotari
RICHLAND COUNTY LANDFILL
2140 Holly Street
Sidney, MT 59270-5700

RE: MAY, 2006 METHANE MONITORING
RICHLAND COUNTY LANDFILL #376 AND CLOSED RICHLAND COUNTY LANDFILL #102

Dear Mr. Huotari:

The Department has reviewed the results of the methane monitoring events for the above noted facilities. The results appear to be consistent with previous reports and within regulatory limits.

If you have any questions regarding this review, please feel free to contact me directly at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Program.

Sincerely,

Mary Louise Hendrickson

Mary Louise Hendrickson
Environmental Science Specialist
Solid Waste Regulatory Program
Phone: 406-444-1808; Fax: 406-444-1374
Email: mhendrickson@mt.gov

File: Richland County/Richland County Landfill/Lic.#102 and # 376/Methane Monitoring
Path: G:\WUT\SWS\Methane\Report Replies\Richland\Richland-CH4-052306.doc

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
4-28-06

April 27, 2006

Mr. Russell Huotari
RICHLAND COUNTY LANDFILL
2140 Holly Street
Sidney, MT 59270-5700

**RE: JANUARY, 2006 METHANE MONITORING - RICHLAND COUNTY LANDFILL #376
MARCH, 2006 METHANE MONITORING – RICHLAND COUNTY CLOSED LANDFILL #102**

Dear Mr. Huotari:

The Department has reviewed the results of the methane monitoring events for the above noted facilities. The results appear to be consistent with previous reports and within regulatory limits.

Please direct all future correspondence related to methane monitoring to my attention. If you have any questions regarding this review, please feel free to contact me directly at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Program.

Sincerely,

MaryLouise Hendrickson

Mary Louise Hendrickson
Environmental Science Specialist
Solid Waste Regulatory Program
Phone: 406-444-1808; Fax: 406-444-1374
Email: mhendrickson@mt.gov

File: Richland County/Richland County Landfill/Lic.#102 and # 376/Methane
Path: G:\WUT\SWS\Methane\Report Replies\Richland\Richland-CH4-042606.doc

Montana Department of
ENVIRONMENTAL QUALITY

Judy Martz, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.state.mt.us

February 12, 2004

Mr. Russell Huotari
2140 West Holly Street
Sidney, MT 59270-5700

RE: January Methane Monitoring Report, Richland County Landfills, License Numbers 102 and 376

Dear Mr. Huotari:

I have reviewed the report and the results appear to be within regulatory limits with the exception of SL-1, which has previously been addressed.

If I can be of further assistance in this matter, please feel free to contact me. My direct phone line is 406-444-5294 and my email address is pcrowley@state.mt.us. The Solid Waste Regulatory Program is a part of the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Waste Management Section.

Sincerely,

F. Patrick Crowley

F. Patrick Crowley
Solid Waste Regulatory Program Manager

Path: G:\CSB\S w s\Methane\Report Replies\Sidney0204.doc

INITIALS FPL DATE 2/12/04

SW OUTGOING CORRESPONDENCE

NEW APPLICATION	**Initial / Date**
Janet H	
Rick T	
INSPECTIONS	**Initial / Date**
Pat C	
Janet H	
Rick T	
CLOSURES	**Initial / Date**
Janet H	
Rick T	
FEES	**Initial / Date**
Janet H	
Rick T	
COMPLAINTS	**Initial / Date**
Pat C	
Janet H	
Rick T	
GROUND WATER	**Initial / Date**
Pat C	
Janet H	
Rick T	
GEN CORRESPONDENCE	**Initial / Date**
Janet H	JS
Rick T	RT 2-12-04
MISCELLANEOUS	**Initial / Date**

MAILED
1-8-04 Jh

Montana Department of
ENVIRONMENTAL QUALITY

Judy Martz, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.state.mt.us

January 7, 2004

Mr. Russell Huotari
Richland County Landfill
2140 Holly Street
Sidney, MT 59270-5700

RE: November 2003 Methane Monitoring, Richland County Landfills #102 and # 376

Dear Mr. Huotari :

I have reviewed the reports and the results appear to be consistent with previous reports and within regulatory limits.

If I can be of further assistance in this matter, please feel free to contact me. My direct phone line is 406-444-5294 and my email address is pcrowley@state.mt.us. The Solid Waste Regulatory Program is a part of the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Waste Management Section. Our mailing address is P.O. Box 200901, Helena, MT 59620-0901.

Sincerely,

FPatrick Crowley

F. Patrick Crowley
Solid Waste Regulatory Program Manager

File: Richland County/Richland County Landfill/Lic.#102 and # 376/Methane
Path: G:\CSB\S w s\Methane\Report Replies\Richland1103.doc

ROUTE SLIP

DEPARTMENT OF HEALTH & ENVIRONMENTAL SCIENCES

TO: DATE: Feb 14, 1995

1. Jon JD
2. Roger pcs
3.

☑ Approval
☐ Note and Return
☐ Prepare reply
☐ As requested
☐ Comment
☐ Note and File
☐ Signature
☐ For your information
☐ Necessary Action
☐ Investigate
☐ See Me
☐ Per Conversation

REMARKS: Standard methane approval

FROM: Pat

DEPARTMENT O
HEALTH AND ENVIRONMENTAL SCIENCES
Waste Management Division
Solid Waste Program
406/444-1430
FAX # (406) 444-1499
STATE OF MONTANA
OFFICE LOCATION: 2209 PHOENIX AVE. HELENA, MONTANA
MAILING ADDRESS: PO BOX 200901 HELENA, MT 59620-0901

February 14, 1995

Richland County Commissioners
201 West Main Street
Sidney, MT 59270

Dear Commissioners:

Please consider this written approval of the methane monitoring plan submitted to the Department on February 7, 1995, by Huntingdon Environmental for the Richland County Landfill near Sidney. Verbal approval was previously granted to John Olson so that he could commence monitoring in a timely fashion. Please understand that this plan may have to be upgraded in the event of detection of methane in the probes or if corrective action is needed at the landfill. The plan as presented is sufficient for the current licensed area.

I understand that the hole depths were based on the proposed depth of waste adjacent to the probes, and screened taking into account potential methane pathways. As-built drawings showing location of the probes was supplied to the Department along with construction details and logs for the probes.

Two minor additions to the plan as submitted are needed. First, the sampling of the ground water wells should be with the probe inserted through a membrane such as aluminum foil taped or rubber-banded to the top of the well. This will reduce dilution from wind passing over the open bore. Second, keys to the permanent methane probes should be kept with the landfill's operation record so that they are available to the Department during landfill inspections.

If I can be of further help in this matter, please feel free to contact me.

Sincerely,

F Patrick Crowley

F. Patrick Crowley
Solid Waste Regulatory Lead

cc: Huntington Environmental, P.O. Box 30615, Billings MT 59107
Damschen and Associates

File: Sidney Landfill, Richland County
path: cb5403\wp\landfill\methane\sidney.ok

"AN EQUAL OPPORTUNITY EMPLOYER"

DEPARTMENT OF
HEALTH AND ENVIRONMENTAL SCIENCES
Solid and Hazardous Waste Bureau
Solid Waste Program
MARC RACICOT, GOVERNOR 406/444-1430
FAX # (406) 444-1499

STATE OF MONTANA

OFFICE LOCATION 836 Front Street
Helena, Montana

MAILING ADDRESS: PO BOX 200901
Helena, MT 59620-0901

November 8, 1993

Milo Lamphire
35 Rock Hill Drive
Billings, Montana 59101

RE: **SIDNEY CLASS II LANDFILL, RICHLAND COUNTY - LICENSE NO. 102**
REQUEST FOR CLOSURE INFORMATION

Dear Mr. Lamphire:

During our telephone conversation last evening you requested information on the closure status of the Sidney Class II Landfill. At the present time the Richland County Refuse Board has not notified the Department that the landfill will close. Additional monitoring (methane), record keeping, an up-dated operations and maintenance plan, and a current closure plan will be required on April 9, 1994, if the landfill does not close by the April 9, 1994, the U.S. EPA extended deadline.

Richland County has submitted an application to the Department for a new landfill location. The Department has reviewed and commented on this application, but has not received any responses to our comments/questions. Therefore, the County cannot proceed until the Department has reviewed and approves the requested responses, issues an Environmental Assessment, and holds a 30 day public comment period.

To receive any data on this site, as well as possible closure information on the existing Sidney Class II Landfill, the Department suggests you contact the Richland County Commissioners for this information as it becomes available. Submittal of a closure plan for the Sidney Class II Landfill is anticipated before the first of the year. If you do not find this acceptable, the Department can add your name to copies of correspondence sent out by the Department.

Per your request, enclosed is a copy of the most recent ground water/surface water analytical data available from the site. This sampling event includes many of the surrounding local supply wells, of which your well (Lamphire) is one. I have also enclosed a copy of my most recent letter to the

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commissioners, attempting to explain the site-specific highlights of the new regulations. Note that the analytical data you requested is quite extensive.

If you plan on requesting any additional data from the Department, bear in mind that the Department will be required to charge you for xeroxing copies based on the quantity of copies involved. The Department files are open to the public, and you may come to our office anytime during regular working hours and review the data in our files. As suggested above, the County should have all site documents on file for public review, as well.

In discussing the results of ground water quality analysis of your well with you over the phone, I would like to reiterate in writing that the condition of this well at the surface has been reported to be questionable for sampling. Based on this site information, any further sampling of this well may incur non-representative constituents in the analytical results, due to the poor (possibly, non-existent) seal at the surface. Also be aware, that the ground water analysis required by the Department does not include all necessary parameters to determine potability. We strongly encourage you to have the local Health Department sample this well before it is used as a domestic water supply. We also encourage you to have a water well driller inspect this well completion, as no data is available on the well and the construction is questionable, especially the existing surface conditions around the well.

If I can be of any additional assistance, or you have any questions, please give me a call.

Sincerely,

Pat Potts

Pat Potts
Environmental Specialist

enclosures

cc: Bill Clark, Project Hydrogeologist, Chen-Northern, Inc., 1610 B Street, Box 4699, Helena, MT 59604

Barry Damschen, Damschen & Associates, Inc.,P.O. Box 4817, Helena, MT 59604

path: sw\milo.let
file: Richland County/Sidney Class II Landfill/ground water (corr)